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Newsprint Code Authority to Hold Hearings

Deputy Administrator Pickard to Preside at Public Meeting on Thursday, February 1, in Gridiron Room of Willard Hotel, Washington, D. C.—Agreement Between U. S. and Canadian Manufacturers to Base Price for 1934 Delivery at Not Lower Than $41 Per Ton Recommended—Extensive Revisions to Sales and Trade Practices Proposed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 24, 1934—A proposed agreement between United States and Canadian news print manufacturers, and a proviso that paper shall not be sold for delivery during 1934 at less than a base price of $41 per ton, are among recommendations made by the Code Authority of the News Print Industry, on which, the NRA announced a public hearing will be conducted beginning at 10 a.m., Thursday, February 1, in the Gridiron Room, Willard Hotel. Deputy Administrator W. W. Pickard will be in charge.

The Code Authority recommends extensive additions to the sales and trade practices of the approved code. These include:

The Code Authority may adjust or modify existing minimum prices, if justified by general changes "in the cost of manufacturing or in the value of the dollar and by conditions in the newspaper publishing industry."

Forms are specified for provisions to be in new contracts for paper for delivery after April 1, 1934.

An elaborate setup is established for making and protecting minimum prices and for fair trade practices, including a zoning scheme for price determination for various parts of the United States.

The proposed agreement between the Association of Newsprint Manufacturers of the United States and the Newsprint Export Manufacturers Association of Canada provides for mutual filing of price schedules and revisions.

Violations May Be Penalized

It is provided that violations of the agreement may be penalized by money damages. "No member party shall be entitled to sue or to bring a proceeding against any other member party for violation of this agreement until the expiry of a period of thirty days" . . . within which time efforts shall be made, before the bringing of suit, "to negotiate an amicable settlement or otherwise deal with the situation as seems expedient."

A Joint Committee is created, composed of four members of the American and of the Canadian associations. It shall have power to call meetings and confer "with respect to the stabilization of the industry and the elimination of unfair practices and destructive competitive prices and to report the results of such conferences with their recommendations to the Associations."

Further Provisions

It is further provided:

"Each member party agrees with each and all other of the parties that it will not sell, lease or otherwise dispose of any paper mill or part with the possession thereof unless the transferee or lessee thereof, or other person to whom such disposal is made, or to whom possession is given, if not already a party to this agreement, shall first become either a party to this agreement or agree to become bound hereby to such an extent and in such manner as the Executive Committee, in respect of a mill in Canada or Newfoundland, or the Advisory Committee in respect of a mill in the United States, may deem proper."

Members may terminate the agreement as of November 10, 1934, by giving notice in writing on or before October 10, 1934.

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Call to the Convention

BEGINNING FEBRUARY 19, 1934

Never in the history of the industry has there been a time so replete with interesting problems pertaining to past unsatisfactory conditions—the present code administration—and the future benefits to be derived from the co-operative spirit that now exists.

Our association has been strengthened through a reorganization on the basis of a Federation of Divisions. Every manufacturer is eligible to membership. Most of them have become members of one or more divisions, and are taking active part in discussing Industry or Division Problems.

Many meetings will be held. Every one of them will be worth attending. It is expected that the attendance will be large—and confined to business discussions. There will be no banquet or unnecessary speeches—strictly business. It will be an expenditure well justified by the resulting benefits. A cordial invitation to attend is extended to you and other members of your organization.

AMERICAN PAPER & PULP ASSOCIATION
S. L. WILLSON, President.

Canadian Newsprint Industry More Stable

Price Level Now Being Maintained Proving Constructive Development—Exports of Various Grades of Paper and Pulp Expand Materially—Movement Under Way to Make Permanent Title of Operators to Crown Grants of Timber Limits

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 22, 1934.—Marked improvement in basic conditions in the Canadian news print field has resulted in strength among the news print and pulp stocks during the past two or three weeks—at least the two have gone hand in hand. Exports of news print, other classes of paper, and most grades of pulp, have expanded very substantially, while the price structure in the pulp market has shown some improvement.

In the news print field, while any early advance from prevailing low prices is unlikely, the price level is now being maintained—a really constructive development in the light of chaotic marketing conditions that have prevailed during the past four years.

The provisional embargo against news print imports imposed by the United States Treasury Department to protect domestic manufacturers while the NRA code is being prepared, is still in effect and Canadian exporters have to put up a bond for each carload of news print going across the line. It is reported that several news print companies in Canada may be disciplined as the result of proof obtained by the Treasury Department at Washington that they had not been complying with the terms of the armistice agreement.

Discussing the market action of the news print stocks of late, an authority in close touch with the industry points out that, while the outlook is undoubtedly more encouraging than it has been for some considerable time, the fact should not be lost sight of that the operators, despite the material expansion in production and sales, are still finding it difficult to make both ends meet. The stabilizing of the present price is a constructive factor, he points out, but draws attention to the fact that the price is an unprofitable one for the mills.

In support of the warning he points out that, while tonnage of exports during November showed an increase of 5.68 per cent., as compared with the same month of 1932, the value of exports was actually 12.1 per cent. lower. This means that the percentage of return to the mills was 16.8 per cent. lower in November last year than in November, 1932. The figures for the twelve months ended November 30 show a decline of .674 per cent. in tonnage of exports as compared with the previous twelve months, while value of exports was lower by 20.06 per cent., representing a drop in percentage return to the mills of 16.8 per cent.

The pick-up in consumption and the stabilization of the price situation in the industry, however, provides encouragement for the future rehabilitation of the industry and an additional constructive factor was indicated this week when it became known that there is a movement on foot to make permanent the title of news print operators to the Crown grants of timber limits.

Bank Sees Better Outlook

Reference was made by the president of the Royal Bank of Canada, head office Toronto, in the annual address to shareholders, to the improvement that has taken place in the pulp and paper industry in Canada. "There has been greater activity in the manufacture of pulp and paper," the president says, "while the price of news print is lower than a year ago, the market situation shows signs of greater stability. It has been strengthened by a material advance in the price of pulp, which enables operations in that division of the industry to be conducted on a profitable basis. While Canada still suffers from the problem of surplus capacity in the news print field, an increase in consumption makes the outlook somewhat more reassuring than it was a year ago."

New Envelope Manufacturing Concern

Globe Envelopes, Ltd., a recently organized concern, has leased a floor in the Bryant Press Building on Adelaide street, Toronto, and early in February will be in production of commercial lines of envelopes. Up-to-date machinery is now being installed. The president of the new company is Irving C. Hall, son-in-law of D. B. Hanna, former president of the Canadian National Railways and head of the Ontario Liquor License Board. He will have associated with him as vice-president, Joseph D. Thomson, for some years connected with the sales department of the W. J. Gage Company, stationery and envelope manufacturers, Toronto. Mr. Hall is widely known in financial and industrial circles in Canada, he having been vice-president of the Dominion Salt Company, vice-president of the Dominion Storage and Forwarding Company, director of the Milnes Coal Company, and vice-president of the A. J. Mitchell Company.

Backus Seeks Bondholders' Support

Holders in Ontario and the Dominion at large of Minnesota and Ontario Paper Company bonds have been circularized by E. W. Backus, president of the company which is now in receivership. Mr. Backus attacks the management given the company by the receivers, C. T. Jarrfray and R. H. Robinson, and also the work of the bondholders' committee. He requests bondholders to withdraw their securities from the hands of the present committee and revoke the authority given the committee to act in behalf of the bondholders. The seven page letter contains specific charges of extravagance and mismanagement on the part of the receivers or the bondholders' committee. Accompanying the letter is a 48-page pamphlet setting forth the legal proceedings taken by Mr. Backus against the receivers. In September, 1933, the receivers filed suit against Mr. Backus and other parties for $7,235,778, plus interest, alleging fraud and bookkeeping manipulation to obtain money for various enterprises.

Notes and Jottings of the Trade

After being unemployed since last August, about eighty men were back at work on January 12 at the Fort Frances paper mill of the Minnesota and Ontario Paper Company. The tonnage to be produced at the mill in the immediate future has been transferred from United States mills.

The death took place in Toronto a few days ago of A. R. R. Jones, well known journalist, who was widely known to the Canadian pulp and paper trade through his articles on topics connected with the industry in various Dominion trade and business publications. Deceased for years had been associate editor of the *Pulp and Paper Magazine* of Canada.

Fox River Valley Paper Mill Activity Brisk

John Strange Paper Co., of Menasha, Wis., Resumes Operations Following Brief Suspension—Former Island Paper Mill Recently Purchased by Mead Corporation, of Chillicothe, Practically Ready—Large Pulpwood Shipments Reflect Increased Production

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 22, 1934—Paper mill activity in the Fox River Valley has been brisk since the opening of the new year, with indications of a good spring season ahead. The John Strange Paper Company, Menasha, Wis., has resumed operations after a brief suspension, and the former Island Paper Company mill at Menasha, recently purchased by the Mead Corporation, of Chillicothe, Ohio, is practically ready to resume operations.

Heavy shipments of pulpwood from Wisconsin and Upper Michigan logging areas reflect anticipated increases in mill volume. The movement of wood is the greatest for several years, the railroads report, with about 20,000 carloads scheduled to move this season to paper and pulp mills and other wood industries.

Allied machinery plants are also finding the demand brisk for modernized equipment and replacements. Several of them report the best volume they have had since 1929. Appleton Wire Works, Appleton, Wis., is experiencing a brisk upturn due to the introduction of its new patented joint for the more efficient operation and longer life of wires. Converting plants, while entirely recovered from the over-buying setback late in the summer, are enjoying a good demand and in some cases capacity production.

CWA Employment Work

When the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and the Nekoosa-Edwards Paper Company, Nekoosa, Wis., last week were accused by Mayor Fred J. Whitrock, Wisconsin Rapids, that they were not friendly to the CWA employment program, officials were quick to supply a convincing answer.

C. E. Jackson, mill manager for the Consolidated at Wisconsin Rapids, pointed out that his company placed all the men at work it possibly could long before codes were adopted, and by staggering the jobs took care of at least 200 additional men. He also declared no one in authority in the company had complained about the scale of wages paid by the CWA.

Officials of the Nekoosa-Edwards company pointed out that they had loaned two machines for CWA work so the projects could be finished by February 15, and the rental charge was the actual cost only. It was pointed out further that the company furnished free from its forestry nursery all trees planted on parking projects in Nekoosa and Port Edwards, and had given the services of E. P. Gleason, chief engineer, and F. G. Kilp, chief forester, without remuneration either to the company or the men.

Wisconsin Forestry Activities

Forestry activities in Wood County, where the Consolidated and Nekoosa-Edwards mills are located, will be extended if the county board adopts a land zoning ordinance now proposed. It would set aside 50,000 acres largely for reforestation, representing land deemed unsuitable for agriculture, and much of which is now tax delinquent. The tax-saving effected by the county probably will assure success of passage of the ordinance.

Marinette county, another paper mill section, also is considering a county zoning ordinance so large areas of cut-over and tax-delinquent land can be utilized for timber growth to supply future demands of industry.

News of the Industry

Demands for paper mill equipment have resulted in a marked pick up of business at the Northern Boiler and Structural Iron Works, Appleton, Wis., according to R. H. Pfund, secretary. The volume is now the best it has been for more than a year and extra workers have been added to the crew. Considerable repair and reconstruction work is going on in the mills, the company finds.

Dr. Charles H. Carpenter, of the Institute of Paper Chemistry, addressed the January meeting last week of the Northeastern Wisconsin section of the American Chemical Society at the Institute building at Appleton, Wis. His subject was "The X-ray Diagram of Cellulose." Sixty members were present.

A source of complaint that has annoyed paper mill owners will be relieved through plans of the city of Menasha, Wis., to construct a special spillway adjacent to the water power in the Fox River, emptying into a section of Little Lake Butte des Morts, where low water has caused an accumulation of pollution and consequent stench. The necessity of conserving water for the mill dams during low stages abetted this condition.

The position of state coordinator in trades and industry for Wisconsin vocational schools, vacated through the resignation of H. G. Noyes recently, has been abandoned for the time being. Mr. Noyes is now personnel manager for the Oxford Paper Company, Rumford, Me. He built up an extensive program of paper mill education for employees. A decision will be made in the spring by the state board as to a continuation of these activities.

S. F. Shattuck, vice president of the Kimberly-Clark Corporation, Neenah, Wis., has been re-elected chairman of the Mutual Benefit Association, the insurance society of company employees. Lawrence Eisenach was re-elected secretary, and W. V. Peerenboom, assistant secretary, at the annual meeting.

John E. Alexander, vice president and general manager of the Nekoosa-Edwards Paper Company, Nekoosa, Wis., has been re-elected vice president of the Nekoosa State Bank. Guy O. Babcock continues as president.

The right to collect toll on pulpwood logs moved from Canada into Lake Superior has been upheld by the United States Supreme Court, in the case of the Pigeon River Improvement Company, of Minnesota, which is headed by D. J. Arpin, Wisconsin Rapids, as president. The action was based on tolls demanded from Charles W. Cox. Lower federal courts held that the tolls were prohibited by the Webster-Ashburton treaty, which makes free and open certain waters flowing from Canada.

TO HOLD NEWS PRINT HEARINGS

(Continued from page 13)

The respective American and Canadian members are empowered to suspend any provisions of the agreement with regard to any member, "if such suspension does not endanger the maintenance of these recommendations."

The agreement may be terminated at any time by a majority vote of either the Canadian or American association.

Chicago Paper Market Exhibits Improvement

Demand for Various Standard Grades of Fine Paper Increases, Including Rag, Book, Cover and Sulphite Papers—Coarse Paper Section Holding Up Well, Following Rapid Readjustments—Ground Wood Papers Displaying Stronger Undertone.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 22, 1934.—Chicago seemed to be full of paper executives during the past week, as various divisions of the industry met to iron out a few perplexing questions covering the paper code. At these meetings, as elsewhere throughout the general Chicago paper market, rapid strides were made toward normal quotations of paper in all grades and under the new provisions. Confidence in the situation seemed to be rapidly returning and business following inventories has been uniformly encouraging.

Particularly has this been true in fine paper markets where sulphites, covers, rags and books have enjoyed an improved demand giving evidence of much improvement. The kraft and other coarse paper markets reported a better than usual pick up following the rapid re-adjustments necessary. Ground woods, while comparatively quiet, had a stronger undertone and orders on which quotations were being made were reported fairly plentiful. The board market, spurred on by quick readjustment and by market investigations concerning new uses, showed improvement. All lines indicated that the new angle of approach covering penalties for small orders was having its effect on quantity buying.

The waste paper market rather uniformly followed the improvement in the regular lines of paper.

Association Activities

The Drake and Blackstone Hotels in Chicago were headquarters the greater part of this week for many paper executives from all parts of the country who met to iron out certain problems revolving around the paper code of fair practices. The Writing Paper Division of the American Paper and Pulp Association and its subordinate divisions, including Sulphite, Covers, Rag and Book Divisions, together with the Lake States Division of the Pulp Manufacturers Association, held sessions on the first four days of the week. All met at the Blackstone, with the exception of the Book Division, which met at the Drake. Emmett Naylor, secretary of the Writing Paper Division, was in charge of the majority of the sessions. The paper manufacturers from all parts of the country centered their attention on the settling of the situation in various grades of paper and, according to reports, contributed materially to the rapid return to a much improved normalcy on the part of this division of the paper industry.

The Midwest Division of the Salesmen's Association of the Paper Industry is now utilizing its regular Monday sessions at the Hamilton Club to lay plans for the annual luncheon event to be held in New York City in February in conjunction with the annual paper trade convention.

J. E. Bryan Heads Shippers' Board

The Midwest Shippers' Advisory Board at its 10th annual meeting in Chicago, last week elected the following officers: General Chairman, J. E. Bryan, traffic manager Wisconsin Paper and Pulp Manufacturers Association; alternate general chairman, G. A. Bahler, General Traffic Manager, Caterpillar Tractor Company; and general secretary, W. N. Wildman, traffic manager of the Illinois Coal Bureau. Mr. Bryan has been very active in traffic affairs for years, particularly with pulp and paper interests. He occupied the position of traffic manager for the Nekoosa-Edwards Paper Company for seven years. He was assistant traffic manager for the Wisconsin Paper and Pulp Manufacturers Traffic Association from 1915 to 1923 and has occupied the position of traffic manager since that time. His election to the general chairmanship of the Midwest Shippers Advisory Board is recognition of Mr. Bryan's exceptional ability as to traffic matters in general.

Shippers' advisory boards were organized throughout the country following Federal control of the railroads. The work they have done in aiding the carriers to bring about better service to all shippers has been recognized by the President of the United States, by the Interstate Commerce Commission, by the United States Chamber of Commerce and others, as one of the controlling factors which permitted the railroads to give the highly efficient service they have rendered in recent years. The territory covered by the Midwest board serves the highly concentrated paper, pulp, and board producing area included in the States of Wisconsin, Upper Michigan, Illinois, Iowa and Western Indiana.

News of the Trade

A number of important changes have been made in the Dwight Bros. Paper Company during the past few weeks. Robert Parker, for many years on the sales staff of the Butler Paper Corporation is the new president of the Dwight organization; while Walter E. Dwight, with the company since its inception, becomes chairman of the board. Other new officers, all of them from the Butler Paper Corporation, have also been announced. Elliott Palmer is now a vice president; while Casmer Kostulski, for 24 years connected with the Butler Corporation, becomes treasurer. J. B. Ughette becomes an important member of the Dwight sales staff, with 17 years of experience with the Butler corporation behind him. Other officers of the Dwight Bros. Paper Company remain unchanged.

Issue number one of a new series of direct mail pieces from the Swigart Paper Company is devoted to a discussion of "Redemption Bond's Letterhead Parade." Inside the folder printed on Primrose Redemption Bond, are interesting and factful testimonial letters on the worth of Redemption Bond which have a sincere ring. One letter was from a printer and the other from the letterhead user himself. The latter was printed on White Redemption Bond. The fourth cover of the folder described the fourteen colors of Redemption and announced the purposes of the folder as "the first of a series of mailings dealing with interesting letterheads and their conception."

L. J. Mullin Goes With Hopper Paper Co.

Linville J. Mullin, who has been connected with Dill & Collins, Inc., Philadelphia, Pa., as assistant superintendent for the past year will leave February 1 for Taylorville, Ill., where he will assume the duties of superintendent with the Hopper Paper Company. Mr. Mullin's associates at Dill & Collins regret his leaving, but wish him every success in his new position.

New Plans for Price Bros. Reorganization

Duke-Price Power Interests, Acting With Lords Beaverbrook and Rothermere, Submit Proposals for Internal Reorganization of Present Company—Bowater's Paper Mills Also Offers New Plans, Including Similar Financial Assistance.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 22, 1934.—The pot is still boiling in connection with the reorganization of Price Bros. & Co., two new plans having been submitted during the past week by rival interests each seeking the control of the company. First came a plan presented by the Duke-Price power interests, acting in conjunction with Lord Beaverbrook, of the *London Daily Express,* and Lord Rothermere, of the *London Daily Mail.* Then followed a revised plan from Bowater's Paper Mills, the large English concern whose previous offer had been accepted by the Bondholders' Committee and rejected by the trustee in bankruptcy for the company. The first-mentioned plan is put forward as one of "impersonal reorganization of the present company," with financial assistance to the extent of $5,000,000 from the Duke-Price and Rothermere-Beaverbrook interests. Similar financial assistance is offered by the Bowater Paper Mills.

Both of the new plans submitted provide an equity in the new company for preferred and common shareholders of Price Bros. Comparison of the two offers, as they affect bondholders, creditors and stockholders of the present company follows:

Under both plans, bondholders receive par for par in new bonds of same terms as old and with same interest rate, with additional bonds to repay arrears of interest to February 1st, 1934. Unsecured creditors, under the Bowater plan get 25 per cent cash, and 50 per cent in 5 per cent income certificates of indebtedness of all proved claims. Under the Duke-Price-Beaverbrook-Rothermere plan, they get 25 per cent cash, or 75 per cent in 4 per cent income certificates of indebtedness. Preferred shareholders, under the Bowater's plan get $50 par of new 6 per cent non-cumulative stock and 1 share of new common stock for each share now held. Under the Duke-Price plan they get $40 of new 6 per cent preferred stock with 3-5ths of a share of common for each share held. Common stockholders, under both plans receive one new common share for each 10 now held.

Meetings of the bondholders, creditors and shareholders are forthcoming at which decision in regard to these plans will be sought.

Japan's Increasing Paper Production

J. A. Langley, Canada's Commercial Secretary stationed in Tokio, reports to the Department of Trade and Commerce at Ottawa, that Japan's production of paper is increasing. He writes in part:

"The production of paper by the members of the Japan Paper Manufacturers' Association for the first five months of 1933 when compared with the same period of 1932 shows an increase of 39,840,518 pounds or 7.4 per cent, with a corresponding increase in sales of 19,262,606 pounds or 3.4 per cent. This is attributed to an increased production of printing and art papers, news print, coloured, and packaging papers. The largest volume of manufacture and sale is in news print. The 1933 production figures for this item show an increase of 10.4 over those for 1932, due to an increased demand from newspaper publishing houses who before the depreciation in the value of the yen used imported papers, but with the drop in the exchange and the consequent rise in the yen selling price of foreign news print, turned to domestic products.

"Due to greater volume of production, the numbers of machines in operation increased in the 1933 period to 142 from 134 in 1932. There was a corresponding increase in the consumption of pulp. During the first five months o 1933 chemical pulp was consumed to the extent of 308,633,236 pounds as against 270,886,943 pounds in the corresponding period of the previous year; figures for groundwood pulp in the respective periods were 199,029,429 pounds and 176,491,902 pounds. Of these amounts, imported chemical pulp is estimated to account for 64,336,264 pounds and 89,123,370 pounds in the 1933 and 1932 periods respectively, while for imported groundwood pulp the estimated figures are 2,820,394 pounds and 2,546,649 pounds.

"Canada is still the principal supplier of pulp to Japan, although purchases in the United States have shown a remarkable increase during the period under review. The total imports of pulp during this five-month period show an increase of more than 30,000,000 pounds or 23.8 per cent in volume, when compared with the same period of 1932. This increase is largely due to the importation of rayon pulp from the United States. The rayon industry has shown a remarkable development during the past eighteen months and, with the more favorable conditions of lower exchange, is expected to continue to expand for some time to come."

To Exhibit Model Mill

The American Writing Company, Holyoke, Mass., is showing a model paper mill, displayed at the Century of Progress last year, in different cities of the country, creating wide interest in this "smallest paper mill in the world." Weekly visitations are being arranged at leading establishments in prominent cities, the exhibition being arranged through the courtesy of Lawrence College, which was instrumental in developing the model. The unit is 16 feet long and comprises a complete working model of a modern paper-making machine, performing all operations from the pouring of pulp in a beater tank at the end of the unit to the production of finished paper, four-inches wide, at the other end. In connection with this display, there is also being shown a complete set of reproduced equipment as employed for paper-making by the slow, laborious hand process in the Seventeenth Century. The latter, likewise, was previously exhibited at the Century of Progress.

New Flexible Shaft Couplings Catalog

The Poole Foundry and Machine Company, of Woodberry, Baltimore, Md., has just published a complete catalog pertaining to flexible shaft couplings. There are all kinds and types of flexible couplings illustrated in the 72 pages of this interesting booklet, complete with horsepower ratings, maximum speeds, dimensions, weights, etc. The catalog also contains unusual designs and types of flexible couplings that have not heretofore been listed. Copies of this attractive catalog may be obtained upon application.

Philadelphia Paper Market Moderately Active

Although Inquiries for Various Grades of Paper Are Appreciating Numerically, Trading is Irregular—Improved Demand Experienced for Coarse Paper and Paper Bags—Paper Stock Moving in Good Volume, With Ledger Stock and Kraft Stronger

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 22, 1934—Trade activity during the week failed to show the usual seasonal improvement, for virtually all indicators bearing on the distribution of paper either declined or showed smaller than customary increases. However, most of them were higher than a year ago. Reports generally indicate a continuance of hesitation and uncertainty with respect to the purchase of merchandise for future delivery, although injuries have been appreciably numerous. There is no forecast of opinion being offered as to how long this condition of affairs will prevail, but all are hoping for a turn for the better.

The coarse paper and bag trade reports stimulated buying, and most noticeably and most welcomed, the virtual cessation of cut throat competition. On account of stabilized buying, to which the distributors generally have been adhering, more buying and in larger quantities than for sometime past, was enjoyed.

Paper stock was in good demand, being restricted, however, on account of many mills which are running on short time not being able to absorb the volume of the cheaper grades. Two very strong grades of waste paper from a price standpoint were ledger stock and kraft. Indications pointed to packers having very little such material in their warehouses and, realizing that at least a fair demand exists for such stock, were bent on securing stiff prices when making sales.

Association Activities

At a special meeting of the Board of Governors of the Philadelphia Paper Trade Association, held on Friday afternoon in its new permanent headquarters, 633 Drexel Building, Megargee Bros., Inc., of Scranton, Pa., were elected to membership, and the following were appointed delegates to the National Paper Trade Convention: Fredk. S. Balch, of the Schuykill Paper Company, 225 Lafayette Building, representing the fine paper, and Nathaniel Saxe of Saxe Paper Company, 320 Race street, will represent the coarse paper division.

At the meeting of the Philadelphia Paper and Cordage Association, Inc., held on Friday last in the Rose Room of the Adelphia Hotel, the following were elected to membership: W. V. Edkins, Drexel Building; Acme Specialty Sales Company, 1304 North Howard street, represented by John J. Shunners, Jr.; C. W. Mather, Mather Paper Company, 611 South Front street; Henry H. Clair, Progressive Paper Company, 134 North Delaware avenue; R. M. Zieve, Diamond Paper and Box Company, 248 North Delaware avenue, and Samuel Schwartz of Schwartz & Co., 151 North Third street. President George K. Hooper delivered his acceptance address for his new term in 1934 and thanked the members for their hearty cooperation in the past year, stressing the importance more than ever of a continuance of same.

Mr. Gemhardt, associated with the Keystone Telephone Company, gave a most interesting and constructive talk on civic associations. A rising vote of thanks was tendered to Mr. Gembardt, and desire to have him return in the very near future was expressed. Leslie C. Bartlett announced that at the next regular meeting—the third Friday of February—there is scheduled a program of vital interest to all salesmen.

Frederick K. Brower, treasurer, reported the finances of the association in a very healthy condition. J. R. Howarth, of the J. R. Howarth Paper Company, in a very informative talk, revealed information of a unique plan on trade relations among the membership, which is bound to redound to the good of all members. Plans replete with information will be submitted at the next meeting. President Hooper, in his inimitable way, spoke at length of his desire to attain a goal of one hundred members, and hearty enthusiasm to accomplish this was manifested by all those present.

A meeting of the Credit Bureau of the Paper Trade Association will be held in the headquarters of the Typotheatae on Friday of this week.

Morgan H. Thomas, president of Garrett-Buchanan Company; and C. Raymond Smith, of Van Reed Paper Company, Reading, are leaving shortly for Mt. Plymouth, Florida, to participate in a golf tournament.

Charles Esser, of Kutztown Publishing Company, Kutztown, Pa., and George W. Weaver, vice-president of Garrett-Buchanan Company, together with their families are leaving Philadelphia this week for an extended motor trip to Florida, returning here in time to attend the Paper Trade Convention in New York.

Elwood Thomas, treasurer of the Garret-Buchanan Company, and son of President Morgan H. Thomas, is leaving for Florida on February 2 for a much needed rest.

Joseph H. Miller, vice-president of Garrett-Buchanan Company, announces their appointment by the Collins Manufacturing Company, as representatives for the following new papers: Collins General Ledger; Collins Active Ledger; Collins No. 1 Linen Ledger; Collins Active Bond; Collins Permanent Bond; and Collins S.R.W. Bond. These papers are all in stock and ready for immediate delivery.

Amos N. Coath, vice-president of the Philadelphia Paper & Cordage Association, Inc., is confined to his home on account of illness.

John L. Richey's New Post

DAYTON, Ohio, January 22, 1934—John L. Richey, secretary and general manager of the Cincinnati Association of Credit Men, submitted his resignation to the Board of Directors the latter part of last week, in order that he might take an active part in an important division of the paper distributing industry under the National Code Authority, it was announced here. The resignation becomes effective February 15 and will terminate a connection with the association of 22 years, Mr. Richey having been secretary since 1911. The details of his new work will be outlined later when plans are completed for this district. It is understood his headquarters will be in Cincinnati.

Mr. Richey has decided to retain two allied posts he has held for several years—secretary-treasurer of the Middle States Wrapping Paper Association and assistant secretary of the Central States Fine Paper Association. These positions, with the new one, will be handled together in offices to be established at an early date, it is stated.

Paper Tests at Government Printing Office

WASHINGTON, D. C., Jan. 22—The Director of the Division of Tests and Technical Control of the Government Printing Office has made the following report to the Public Printer on paper tests during last year:

As a result of tests on deliveries of paper to the Office during the past two years, a number of changes have been made in the paper specifications, all tending toward the improvement in the quality of the paper. Definite limits for acidity have been included for the first time in a number of the specifications for book, lithographic, manifold, bond, ledger, and index papers. The folding endurance requirement has been increased on the writing, bond, and ledger papers, and has been added to the specifications for several other grades in order to insure greater durability of these papers.

The total amount of paper received during the year was 36,266,791 pounds, a decrease of 23 per cent from last year. Of this amount, 3,131,259 pounds, or 8.6 per cent, were rejected.

As in previous years, the greatest amount of paper rejected was between March 1, the beginning of the fiscal year for paper purchases, and June 30.

There were 270,804 pounds, or 0.75 per cent, of paper rejected for deficiency in folding endurance as compared with 235,636 pounds, or 0.50 per cent, rejected last year.

Some difficulty was encountered this year with newsprint not conforming with specifications in tensile strength, although this requirement was fully complied with in previous years. The trouble experienced last year with dirty paper and lack of opacity has decreased considerably, due no doubt to greater care by the contractors to comply with specifications and standard samples. Rejections for deficiency in stock, bursting strength, unsatisfactory color or finish also decreased to some extent.

The principal cause for the rejection of paper during the year was high acidity. There were 709,463 pounds, or 1.9 per cent, rejected for noncompliance with specifications in this respect. This requirement was included in the specifications for the first time on many items, and the rejections were therefore due either to lack of or limited technical control in the mill or unfamiliarity of some of the new contractors with the more accurate methods of testing for acidity.

Requests for details of the quinhydrone electrometric method for determining acidity used by the Government Printing Office were received from the contractors experiencing trouble in meeting this requirement. After furnishing them full details of procedure subsequent deliveries by most of these contractors fully complied with specifications.

Determination of Paper Acidity

As stated in last year's report the section of the work assigned to the Government Printing Office in the cooperative research on methods of determination of pH values and total acidity in paper has been completed. Issuance of the final report is still being held up waiting the completion of the work at the other laboratories. Acidity requirements are now included in the specifications for 36 grades of paper as compared with 14 grades last year. The quinhydrone method for determining the pH value of paper was prepared in detail, and many requests for this method have been received.

Deterioration of Sulphite Papers

The study of relative rates of deterioration of papers containing varying percentages of bleached and unbleached sulphite pulp conducted in cooperation with the Bureau of Standards has been continued during the year.

Two years of natural aging of the samples stored and of the samples exposed to light in the laboratory office and in the constant temperature and humidity room has been completed and the physical tests have been made to determine the amount of deterioration. Tests after 2 years of natural aging by storing in the laboratory office indicate that the loss in strength of the papers containing unbleached sulphite pulp as determined by bursting strength and folding endurance is greater than in the 100 per cent bleached sulphite paper. The loss in folding endurance of the papers exposed to natural light for two years in the same room is about the same for all papers.

The deterioration of papers exposed to natural light is greater than the corresponding papers stored under normal conditions. Of the papers hung and stored in the paper humidity room under controlled atmospheric conditions the samples containing 50 and 75 per cent unbleached sulphite pulp showed greater deterioration than the samples containing 25 per cent unbleached and no unbleached sulphite pulp. The papers which were stored showed greater deterioration than the papers which were hung in the room.

The deterioration of the papers exposed to natural light and stored in the laboratory office is greater than that of the corresponding papers hung or stored in the paper humidity room under controlled atmospheric conditions.

Paper-Smoothness Tester

A study was made of the value of the Bekk smoothness tester in evaluating printing papers. This tester was found to be the first practical instrument for measuring the smoothness of paper surfaces, giving results in numerical terms. The results of the study indicate that smoothness limits or smoothness range can be determined for certain classes of printing papers.

A report of this study entitled "The Bekk Smoothness Tester as an Aid in Studying the Printing Quality of Paper" was presented at the annual meeting of the Technical Association of the Pulp and Paper Industry in New York, February 13-16, 1933, and was published in the PAPER TRADE JOURNAL, volume 96, no. 4, January 26, 1933.

Paper-Wearing Tester

Owing to difficulty in obtaining representative samples of paper for test, and also due to work on more urgent problems, the study of the paper-wearing tester developed in this office has not been completed as contemplated. The data so far obtained tend to show that at 50 per cent relative humidity and 70 deg. F. temperature the wear test, as determined with this instrument, grades paper in the same general order as the folding-endurance and tensile-strength tests. The data also show that the wearing test is greatest at 50 per cent relative humidity, decreasing from this point with either increasing or decreasing relative humidity.

Microscopical Examination

This work was carried out in conjunction with the microscopic subcommittee of the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry. In view of the fact that the official Bright method for determining the amount of unbleached fiber in paper consumes too great a time for making an analysis, a study was

made of this method with a view of shortening the time for the determination.

A modified method of procedure in which an analysis can be completed in approximately 15 minutes instead of 1 hour will be recommended to the microscopic subcommittee for adoption by the Technical Association of the Pulp and Paper Industry.

An article entitled "Rapid Methods for Determining Unbleached Fibers in Paper" is ready for publication. In addition to the modified method of procedure of the official method, there is described in this paper a procedure employing a malachite green stain which can be used by experienced analysts when quick and only approximate results are desired.

Work was also done on the Shaffer method for distinguishing bleached sulphate from bleached sulphite fibers, and comments on the same were submitted to the microscopic subcommittee.

Moisture in Paper

At the request of the chairman of the paper-testing committee of the Technical Association of the Pulp and Paper Industry, the percentage of moisture in paper as received in this office is being determined on all papers. This is done in order to obtain information as to the variations in moisture content of papers shipped by different mills and the amount at different seasons of the year.

Envelopes

Envelopes purchased during the year totaled 30,936,533, a decrease of 17,413,669, or 36 per cent. Of these, 951,975 were rejected. There were 16 rejections, comprising 3.1 per cent, as compared with 30 rejections, or 7.9 per cent, last year.

The physical requirements of the specifications for envelopes remained the same as last year, and no great difficulty was experienced by any contractor in furnishing envelopes conforming with specifications.

There were only 155,350 envelopes rejected for deficiency in folding endurance, of which 10,000 were also rejected for noncompliance with specifications in stock and bursting strength.

A Paper Mill Worker Praises NRA

Kelso, Wash., January 20, 1934.

Editor, PAPER TRADE JOURNAL:

The introduction of NRA to paper mills is the greatest thing from a worker's viewpoint to come into the industry since two shifts were abolished.

Only the other day when a committee representing the workers called on the manager of a mill, he said he welcomed the opportunity to come into close contact with his men, to get better cooperation and suggestions from men in the ranks and decide how to make the job better, safer, and operation more economical.

If all managers and operating superintendents would assume this attitude it would be of great benefit to both the employer and employee. It would create a spirit of partnership now so greatly lacking in so many mills. For a man to see some of his ideas put into practical use encourages that man to do still better work and to take a more personal interest in his job.

It has been my good fortune to have worked in some of the big new mills that have gone into production in the past twelve years in widely scattered parts of the country. And in only one of these did I find the whole-hearted encouragement of both the management and foremen in getting ideas and suggestions from the employees.

I have recollections of a certain mill where new ideas were frowned on, and the general order of the day was "mind your own business." And the remedy for all ills was fire some one. I operated a machine in this mill for about eight months and in that time the wire seam marked continuously on light weight. In eight months we had on eight wires, three of foreign make and five of American make. Forty-nine days was maximum running time, fourteen days minimum. On the wire that ran forty-nine days we cleaned the seam sixty times, ten times in one twenty-four hour period. Three of these wires were cut off in less than twenty days for seam marks. This wire had five showers, two fresh water and three back water.

It was necessary to wash the guide roll (inside roll) as often as every forty minutes. This by actual timing. We lost many hours digging wads out of the driers where the seam impression would pull apart. Three machine tenders were fired and one died but the seam marked right on and no operator in these eight months was to my knowledge asked for his opinion as to the cause of the trouble. A get-together from the digester room, beater and jordan rooms, the Oliver and Broke heater men, and a good hashing out of the problem would doubtless have saved the company many thousands of dollars.

First felts too were quite a problem on this job. We had in eight months, sixteen first felts of most every well-known make. The result was always the same—blow, break and blow. This was a suction press, equipped with standard felt conditioners, designed to operate with water, steam and vacuum. In this case, vacuum alone was used, thus reducing the efficiency of this attachment by two-thirds. When an operator suggested that they were running as designed successfully in other mills, he was curtly told "They won't run here." That ended it.

No inquiry was ever made as to why they should be successful on hundreds of other machines and a failure on this particular one. A little investigation here and some warm water would have cut this company's felt bill more than half and saved many breaks.

Another "break maker" on this machine was a doctor blade, made of rubber belt. This I believe was a local "invention" as I have never seen one before or since on a fast machine. This blade kept the roll dry and sticky at all times. It was necessary for the operator to scrape this roll continuously in an almost vain attempt to keep his sheet over. When other known types of blades, proven successful, were pointed out, the comment was only a lifting of the eyebrows, as much as to say, "maybe." The value of time lost by breaks, stops to clear the blade of wads and to gasoline the roll and the frequent changing of rolls for scraper nicks, if put into actual money would have bought a first class doctor blade for every machine this company owned. This is pointed out only as an illustration of things as they sometimes happen. And it may be that some operating superintendents who will see this will doubt if it could happen but it did occur just as I have said, on a machine of over 200 inches and running from 800 to 900 feet. It was in a mill operating less than five years.

If those in charge would only realize that throughout the mill there are many men who could and would willingly cooperate to a far greater extent if they felt that their opinions would be welcomed rather than resented! This cooperation would be of general benefit to all concerned.

Again I say that the NRA should be commended for making possible the close harmony between employees and the management.

J. O. PARKS.

Obituary

Daniel D. Whitney, Jr.

Daniel D. Whitney, Jr., of the sales force of the Walker-Goulard-Plehn Company, Inc., mill distributors of paper, of 448-450 Pearl Street, New York, and who had been with the old Maurice O'Meara Company for eight years before the succession of the corporation to the old O'Meara concern in March, 1927, died Friday, January 12, in his 44th year.

He was very much beloved by his associates at Pearl Street because of his very genial personality and his loss was a great shock to all. His death was due to a very acute attack of quinsy sore throat, followed by infection, which caused his demise within 72 hours.

Mr. Whitney was a veteran of the World War and an old Brooklyn resident, being the grandson of the late Mayor, Daniel D. Whitney, of the old City of Brooklyn, and the son of Daniel D. Whitney, widely known Brooklyn attorney.

As a young man, and a student of Erasmus Hall High School, he was a crack half-miler, and considered one of the best in the East. During the World War he served with the 305th Infantry, 77th Division. His home for the past three years was in Rutherford, N. J.

Besides his father, Mr. Whitney is survived by his wife, the former Miss Medora Frances Boyd, whom he married in 1919; a daughter, Jean; and four sisters, Mrs. J. Morris Wilkinson, Miss Marion S. Whitney, Mrs. Sheldon A. DuCret, and Mrs. Lawrence D. Smith.

George L. Irvine

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., January 22, 1934.—George L. Irvine, aged 70, president of the Saniwax Paper Company, of Kalamazoo, died recently at Melbourne, Florida, where he was spending a vacation at the Southern resort. He had been in poor health a number of years. He was accompanied south by Mrs. Irvine. For several years it had been the custom of Mr. and Mrs. Irvine to spend their winters in Florida.

Mr. Irvine came to Kalamazoo from Rockford, Ill., twenty years ago, to take over the business which he headed at the time of his death. He built a comparatively small concern into a prosperous and important industry.

During the last few years he had spent much of his time in travel abroad with his wife. He maintained a summer home at Gull Lake, near here, and spent his winters in Florida with the Kalamazoo colony at Melbourne.

Mr. Irvine was interested in community affairs and was particularly active in helping boys and young men. He was a member of the Rotary Club and of the Presbyterian Church.

He leaves the widow and one son, Stuart Irvine, who is secretary-treasurer of the Saniwax Paper Company.

Nathan Leshner

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 22, 1934.—Nathan Leshner, 47 years old, president of the Leshner Corporation, Hamilton, Ohio, and widely-known in paper circles throughout this and other sections, died in Deaconess Hospital, Cincinnati, following a protracted illness.

Mr. Leshner's rise to the presidency of a large corporation was the usual story of a succession of hard knocks and the success that generally awaits the untiring worker. He located in Hamilton 27 years ago, having come from Russia. He started in the waste paper business as a peddler. After a few years he began to specialize in the buying and selling of waste paper and in 1917 organized the Leshner Paper Stock Company, which was incorporated with himself as president.

In 1929 the name was changed to the Leshner Corporation and by this time the firm had become one of the largest of its kind in the country. The Hamilton plant is one of the biggest in the United States. Despite a disastrous fire, the plant expanded until it occupied a number of acres.

Mr. Leshner was a great traveler and had visited Europe a number of times. He was fond of addressing trade organizations and explaining conditions as he found them in his native Russia. When a dinner was tendered to Maxim Litvinoff, Russian minister, who was in this country arranging for Soviet recognition, Mr. Leshner was among those invited to the dinner given to the envoy before he sailed for his homeland.

Mr. Leshner was known for his many benevolences. He founded the Library at the Avondale Synagogue, which bears his name. He was also one of the contributors to the Beis Israel Synagogue in Hamilton, which was erected recently. He was a patron of many charities.

Besides his widow, Rose Leshner, he is survived by one daughter, Sylvia Leshner; his aged mother, Mrs. Gertrude Leshner, who resides in Hamilton; three brothers, Jacob, Harry and Samuel Leshner, all of Hamilton; and his sister, Mrs. I. Petricoff, of Hamilton.

Wisconsin Waste Disposal Committee Meet

The Advisory Committee on Waste Disposal of the Wisconsin Pulp and Paper Industry met with officials of the Wisconsin State Committee on Water Pollution at Madison, Wisconsin, the early part of December, at which time the work accomplished in 1933 was reviewed and plans laid for attacking the problem of stream pollution in 1934.

Reports were made by the State on the result of their survey of the sewers of all the mills in the State during the past year, and on their survey of the various rivers in the State on which mills are located, showing the oxygen balance of these various streams. On the basis of these reports plans were laid for a continuation of this survey work in 1934 involving the maintenance of control stations, the use of mill laboratories and personnel, and the construction of weir measurement of sewers. Work is also planned by the State to determine rate of re-aeration below sources of pollution under winter conditions.

Although it was reported that fishing on the streams of the State in general was better in 1934 than 1933, the test made on the streams and on mill sewers did not indicate any appreciable improvement in the process of waste elimination and pollution elimination, so based on the results of 1934 most of the mills in the State will make a determined drive for improvement in 1934.

Pre-Hearing Denied On Silver Bullion Case

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 23, 1934.—The United States Circuit Court of Appeals last week denied the motion of the Holyoke Water Power Company for a re-hearing on the famous silver bullion case of the American Writing Paper Company, Inc.

The Holyoke Water Power Company has three months within which to file with the clerk of the United States Supreme Court a plea for a writ of certiorari whereby it may be possible to bring the case before that body.

Felt Industry Files Code

WASHINGTON, D. C., January 24, 1934.—The Paper Makers Felt Industry, said to be devoid of labor troubles since 1895, with complete harmony obtaining between employers and employees, submitted a code of fair competition to Assistant Deputy Administrator A. Henry Thurston at a hearing held here last week.

The code, as presented, provides for a maximum work-week of 40 hours, but electricians, firemen and employees engaged in repairshop, shipping, watching or outside crews, and office, sales and supervisory staffs are exempted from the maximum hour provision. Minimum wages of 35 cents per hour were proposed in the code.

The industry, according to W. W. Campbell, chairman of the code committee, extends from Maine to Wisconsin and numbers 11 manufacturers who, in 1929 employed some 2,200 workers. "Our employees are almost a part of our own families," he asserted, and since the industry's organization in 1895, employees and employers have enjoyed complete harmonious relations and he called attention to pension payments and other benefits accorded workers in the industry. In response to a question by the assistant deputy, Campbell stated that more than 90 per cent of the employees would receive wages above the minimum. Total hours of labor have been as high as 60 and as low as 48 per week, although 40 hours has been the rule for "several months" he said.

Robert P. Hooper, of the William E. Hooper & Sons Company and also representing a group of cotton paper felt manufacturers asked that the definition of the industry be changed so as not to include cotton felts. Code sponsors expressed a desire to make the suggested change pointing out that they had no desire to include manufacturers operating under the cotton textile code.

George Link, Jr., of the Dry Saturating Felt Manufacturing Association, New York City, stated that his group consumes a large part of the industry's product. Although the cost of raw materials has declined sharply during the past few years, Mr. Link said, manufacturers in the paper makers felt industry have not lowered the prices appreciably. Mr. Link stated that he envied any industry that could maintain such a high degree of price stability over a period of years but, he continued, "consumers should receive some consideration."

Fred E. Huhlein, representing the NRA Consumers' Advisory Board, supported the views of the previous witness and in addition he asked that the section on price lists be amended to require that such lists be open for inspection at the time of filing with the Code Authority, and that the trade be notified when revised lists are filed. Mr. Huhlein also asked for a provision prohibiting "false labelling" and "advertising" and he urged that consumers be accorded representation on the Code Authority.

John L. Donovan, representing the Labor Advisory Board and speaking on behalf of William F. Kelly, vice-president of the United Textile Workers of America, proposed a 30-hour week and a 6-hour day, with maintenance and repair crews to be allowed a ten per cent tolerance, time and one-third to be paid for hours worked in excess of this maximum. Mr. Donovan asked for minimum wages of 56 2/3 cents per hour or $17 per week and he urged the creation of a Joint Industrial Relations Board. In concluding he asked for representation on the Code Authority.

Swedish Pulp Exports Increase

WASHINGTON, D. C., January 24, 1934—Swedish pulp and paper exporters were able to better their position in the export market during 1933, shipments of all classes of pulp showing an advance over 1932, while paper and board exports in the aggregate were also larger.

The New Coe Drainator

The Coe Drainator is a new and radically different device for removing condensate from steam condensing devices, kettles, presses, heating and processing machines, etc. It has no moving parts whatsoever and relies for its operation on the utilization of the thermo-dynamic properties of steam and hot water to regulate the flow through the device.

The Drainator is a simple, compact apparatus with the following characteristics:

First. A positive, visual indication at all times not only

COE DRAINATOR.

that the condensate is flowing, but that *all* the condensate is being eliminated.

Second. A means for handling entrained air, the capacity of which increases in proportion to the amount of air present.

Third. A device which will operate on any steam pressure up to the mechanical strength of its body without any exchange of parts.

Fourth. A condensation handling device which can and should be installed without a by-pass.

The new Drainator is an improved design of the original Chevalier Drainator, which was developed in San Francisco, and of which several thousand are already in use, mainly in California and on Pacific steamships.

The Coe Manufacturing Company, of Painesville, Ohio, has acquired the patent right to the Drainator, made several valuable improvements and now offers it for sale in various sizes from ½ inch to 1½ inches, in a range wide enough to accommodate any drainage condition.

A new illustrated bulletin giving a complete description of the Drainator and a list of over 600 users will be sent on request to anyone addressing The Coe Manufacturing Company, Painesville, Ohio.

John Owen Joins Fox River Paper Co.

John Owen, formerly with the Fraser Industries, has joined the sales staff of the New York office of the Fox River Paper Company, 35 Madison Avenue. For more than fifty years the Fox River Paper Company has manufactured a full line of rag content Bond and Ledger Papers in its mills at Appleton, Wis. Mr. Owen gained his knowledge of this field through many years of association with the American Writing Paper Company, Inc. He assumed his new duties at the beginning of the year.

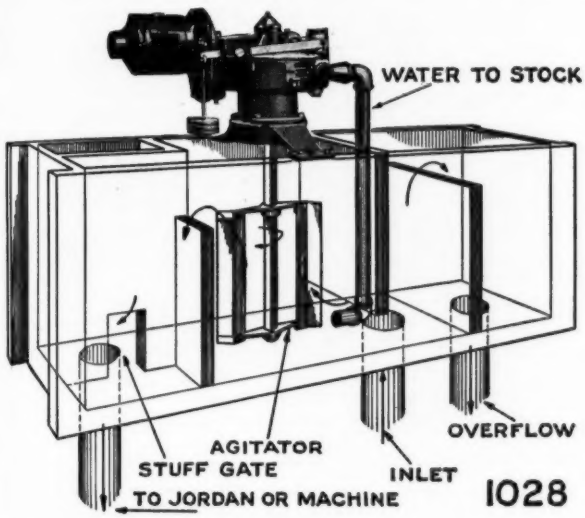
Model "V" Precision Regulator

The model "V" Precision Meyers-Mesco Regulator fills a long-felt need for a precision device built for mills of small or medium hourly capacity. It is a logical development for this purpose, of the well-known Standard Model "S" machine now in highly successful use in many paper and pulp mills in this country and abroad.

The Model "V" Regulator operates on stock at any consistency between 2 and 5.5 per cent and on "slow" stocks up to 6 per cent. The nature, type or degree of refinement of the stock does not affect its accurate performance within the stated density limits.

It is guaranteed to automatically and continuously maintain consistency within one-eighth of one per cent of any density within its range. For example, a four per cent stock will be held between the limits of 3.87 and 4.12 per cent.

The Model "V" Regulator has one of its most valuable functions as a controller of weight of sheet. For this purpose it is preferably installed in a stuff-box immediately ahead of machine screens. But if there is no chest



between jordan and machine, it is located at the jordan inlet, thus protecting both freeness and weight. As a weight controller, it is guaranteed to maintain sheet weight within 2.5 per cent of basis. For example, a 40 pound sheet will be held between 39 and 41 pounds at constant machine speed and sheet moisture.

It responds instantly to variations in density. This makes it invaluable during those trying periods of starting up and pumping out when it is almost impossible to hold weight within acceptable limits. When changing weights, the new gate position can be set without "hunting around" and consequent production losses. When running along, whether chests are full or low, whether stock of varying density is coming from the beater room, or whether conditions are being disturbed by possible save-all discharge into the machine chest, your machine tenders will not be found racing madly up and down the stairway to the stuff-box—nor will you be making stock for the beater room.

The first material variable in the manufacture of pulp and paper is in non-uniformity due to consistency variations. For a given stock, beating action, refining effectiveness, screening efficiency and formation are affected by density and condition of the stock. Uniform results at any stage of the process cannot be hoped for unless, other conditions being equal, the amount and density of stock is regulated by a most reliable means. Weight variations not only result in commercially unacceptable product, but affect drying action and moisture content. Meyers-Mesco Regulating Equipment is the most reliable and accurate means of density control obtainable.

The Model "V" Regulator is a sturdy and compact machine of pleasing appearance and careful design. It is furnished complete with a substantial wood stuff-box, having a precision type "V" port gate. Each compartment is proportioned to suit the volume of stock to be handled. It is adjusted to any density within its range by adding to or taking away weight from the counter weight lever.

Additional information regarding this consistency regulator may be obtained from the Merritt Engineering and Sales Company, Inc., Lockport, N. Y.

Boston Paper Market Buoyant

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 22, 1934—Still further improvement was noted in the wholesale paper market here during the last week. Merchants continue to prepare their price-lists. At least a moderate business has been put through in the fine paper division of the trade. Wrapping paper demand was still better, with "something doing all the time." There was more activity in box boards, with a betterment in the paper box industry. A bigger movement developed in material for shoe cartons. The plants of M. B. Claff & Sons at Brockton and Randolph, which manufacture shoe boxes, are operating on two shifts a day.

Paper stock conditions have improved to a marked degree, with much more activity in the market. Mill contracts are being placed at higher prices and dealers look forward to business for several months. Paper mills that have been out of the market for a number of months are showing interest in various lines. Mixed papers and old news papers held steady at advances already made. Mixed papers were in good demand. No. 1 kraft advanced to 1.05 to 1.10 from a former price of 1.00. Bagging continued active, heavy wool tares taking another jump, going to 1.25, compared with a former quotation of 1.15. New burlap cuttings also made an advance to 1.25 to 1.50 from a previous quotation of 1.15 to 1.25. New domestic rags continued strong at the same levels. In old domestic rags, roofing stock was exceedingly active. The No. 1 grade was quoted in some quarters at .75 to .90 and in others as high as 1.00 to 1.05, compared with a previous quotation of .60 @ .65; No. 2 at .65 @ .75, against .55 @ .60, and No. 3 in certain quarters at .45 @ .55 and in others up to .65 @ .70, compared with a previous quotation of .35 @ .45. In foreign rags, dark cottons advanced to 1.25 @ 1.40, against 1.10 and old linsey garments to 1.40 @ 1.50, against 1.10. Buyers of foreign rags are reported to be willing to pay these prices.

The demand for all kinds of twine improved, with buyers "sitting up and taking notice."

Charles Davidson, Jr. With Whiting Co.

[FROM OUR REGULAR CORRESPONDENT]

WEST SPRINGFIELD, Mass., January 22, 1934—Charles Davidson, Jr., superintendent of the Southworth Company here for the last ten years, has become superintendent of the new No. 3 mill of the Whiting Paper Company, Holyoke, Mass. His father, Charles Davidson, Sr., in charge of the No. 3 mill of the Whiting Company, has been transferred to the No. 2 mill as superintendent. The son started in the paper industry eighteen years ago in the mill of the Strathmore Paper Company here.

Champion-Andrews Sales Meeting

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 22, 1934—The meetings of the Andrews Paper Company with the Champion Coated Paper Company, previously announced, opened with a dinner at the Parker House Friday evening. In attendance from the Champion organization were George S. Johnston, Eastern manager, with offices in New York City; Kenneth Hunt, advertising manager, of the home office, Hamilton, Ohio; S. Eney, sales promotion manager, of the New York office, and George Standbridge, New England manager, with offices in Boston.

Fred Herbolzheimer, manager of the fine paper department of the Andrews Paper Company, was toastmaster. All the salesmen of the Andrews company from the entire territory were called in, so that forty attended. The only thing regretted was the absence of the president of the Andrews Paper Company, Frank Merrill, who was unable to be present on account of illness.

Mr. Johnston, Frank C. Cate, vice-president and secretary of the Andrews concern, Mr. Standbridge, Mr. Eney and Mr. Hunt were the speakers. After a few remarks, Mr. Hunt showed moving pictures of the Champion organization, including the plant or pulp-mill of the Champion Fibre Company in North Carolina, the sulphite holdings in the woods of North Carolina, or the trees from which the pulp is made, and the mill at Hamilton, through the various divisions, demonstrating how book papers and card boards are made. The pictures as well as the accompanying lecture were most interesting. The meeting adjourned about 11 o'clock.

The second meeting began with a luncheon on Saturday at the Parker House. After Mr. Johnston had spoken, Mr. Hunt gave "the most interesting talk on paper the Andrews organization has ever had the privilege of listening to." Mr. Hunt was followed by Mr. Eney, who lectures at New York University on problems of printing. He gave a highly instructive talk. All those attending realized that they had a better understanding of Champion-made papers, on adjournment at 7:30 o'clock. The Andrews salesmen were very enthusiastic. The company is looking forward to the securing of a great many more contacts for Champion-made papers throughout the New England states.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 22, 1934—The New England-Central and Northern New York Regional Committee of the Paper Distributing Trade, Region No. 1, has taken an office in Room 760 at 49 Federal street. Chas. A. Esty, a member of the Code Authority for the paper distributing trade in the New England-Central and Northern New York Region is chairman of the Regional Committee. F. B. Cummings is executive secretary of that committee. The office of the New England Paper Merchants Association, of which Mr. Cummings is executive secretary, has removed to Room 761 in the same building, from Room 331. The telephone number, Liberty 1807, remains the same.

The Ham Paper Company, formerly in Room 631 at 10 High street, has removed to larger and much pleasanter quarters in Room 720 at the same address.

Paul D. Poinier, of the Poinier-Carmer Company, box board dealers, has returned from a business trip to New York.

George D. Allen, of Knight, Allen & Clark, Inc., is able to return to his office after an illness.

Japan's Paper Industry Expands

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 24, 1934—Substantial progress has been evident in Japan's paper industry during recent months, according to a report to the Commerce Department from Assistant Trade Commissioner Donald W. Smith, Tokyo.

During the four months ending in October last, sales of paper amounted to approximately 15 million pounds more than production in the same period previously. In order to meet the heavy demand it was necessary to release stocks which had been taken off the market last spring when production was far greater than demand.

The output of foreign style paper has been steadily increasing, the report states. Production in the ten-month period ended October amounted to 1,178,976,000 pounds compared with 1,085,998,000 pounds in the corresponding period of 1932. Since the establishment of the Paper Manufacturers Association, which includes among its members the seven important producers of foreign style paper in Japan, paper production has been greatly curtailed by an agreement among the members.

Sales of newsprint account for approximately 40 per cent of all the foreign style paper sold in Japan, and the demand for this type has improved during the past ten months. The boom in Japan's export trade has been reflected in the sales of wrapping paper.

A substantial improvement has also been noted in the demand for print paper and also for writing and drawing paper, art paper and card board.

Japanese exports of paper and paper products registered a notable increase in 1933, the value of exports during the January-October period amounting to 20,592,000 yen registering a gain of 6,000,000 yen over the coresponding period of 1932.

Consumption of imported paper has declined in Japan, the report points out. There is little doubt, it states, but that the high prices of foreign papers has been an important factor in stimulating the sale of domestic paper products since the devaluation of the yen.

Gottesman & Co. Move

Gottesman & Co., Inc., formerly located at 1440 Broadway, moved their offices on January 22 to 22 East 40th street, corner Madison avenue, New York, where they occupy the entire 35th and part of both the 34th and 36th floors.

The new telephone number is Ashland 4-4700.

D. Samuel Gottesman, president of Gottesman & Co., Inc., announced that the Central National Corporation, of which he is also president, likewise are now located at 22 East 40th street.

Gottesman & Co., Inc., were established in 1886 and are among the largest distributors of wood pulp and papermakers' chemicals. They have been located in the midtown section of New York over twenty years.

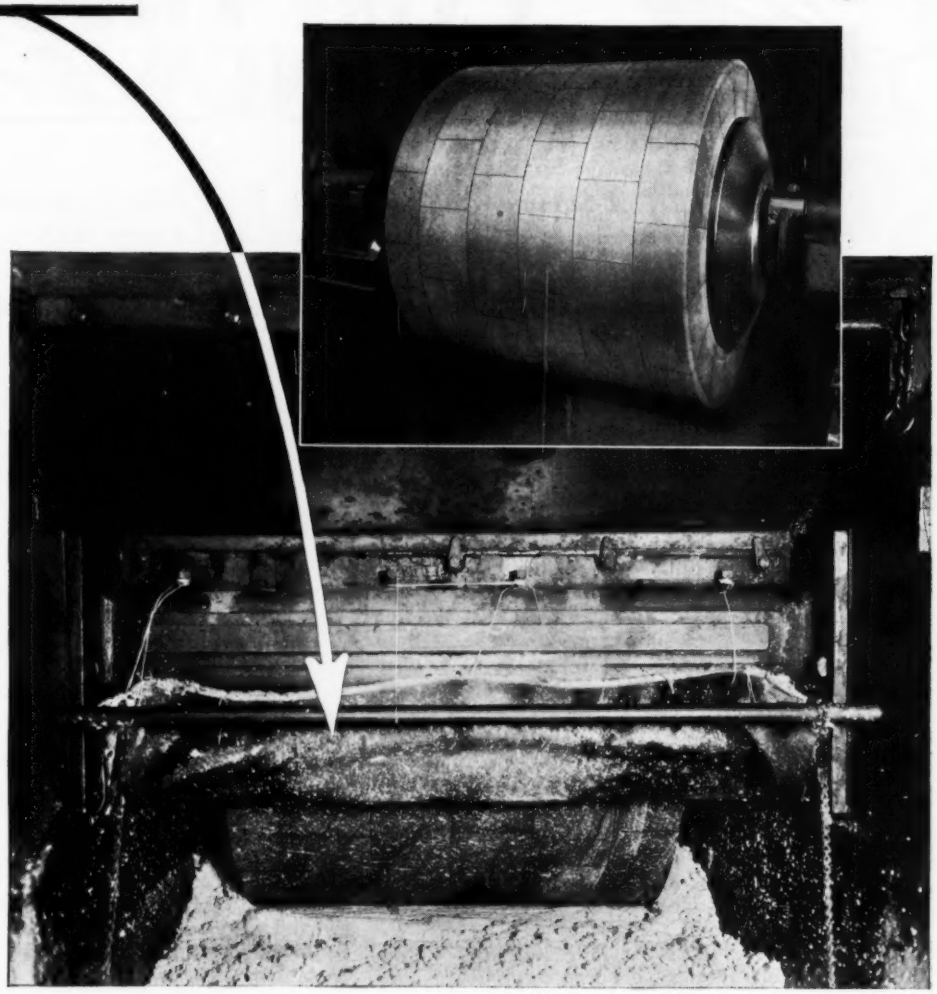
Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 24, 1934—The Perkins-Goodwin Company has been awarded the contract for furnishing 71,750 pounds (500,000 sheets) of 32 x 42, No. 40 white sulphite writing paper at 4.74 cents per pound, bids for which were received on January 9.

The Aetna Paper Company will furnish 11,300 pounds (50,000 sheets) of 24½ x 32½ white sulphite index single ply at 5.44 cents per pound, bids for which were received on January 8.

It is HERE That a Good Sheet Begins



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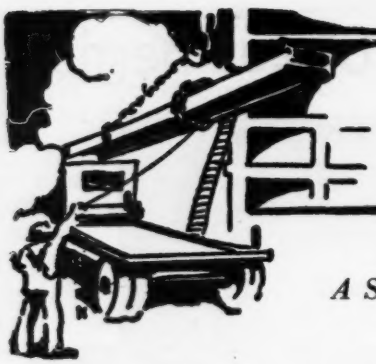

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chicago, Ill.—The Container Corporation of America, 111 West Washington street, manufacturer of corrugated and other paper boxes and containers, is awarding miscellaneous contracts for modernization program at two local plants on East North Water and North Ogden streets, respectively, and will proceed with work at early date. New paper-making and box-manufacturing machinery will be installed, as well as new boiler house equipment; certain machinery at the coated-board plant will be rebuilt, and new breaker beaters installed. Entire project will be carried out in next four months and is estimated to cost close to $100,000. Walter P. Paepcke is president.

Chicago, Ill.—The Ackerman Carton Corporation, 5742 North Washtenaw avenue, recently organized with capital of 4000 shares of stock, no par value, plans early operation of local plant for manufacture of paper boxes and containers. New company is headed by Francis C. and George M. Ackerman.

Philadelphia, Pa.—The Paper Manufacturers Company, Inc., Fifth and Willow streets, has taken over a one-story building at 407-11 North Randolph street, on site 44 x 63 feet, heretofore held by the Lyter Body Company, for a consideration of $19,000, and will use in connection with operations, adding to its realty holdings in this section.

New York, N. Y.—The West Side Bag and Paper Company, 21 West 100th street, has leased the building at 653-55 West 131st street, and will occupy for new storage and distributing plant.

North Bergen, N. J.—The Gibraltar Corrugated Paper Company, 1723 Bergen Turnpike, has arranged for an increase in capital to $50,000 preferred stock and 10,000 shares common stock, no par value, a portion of fund to be used for general expansion. As recently reported in these columns, company has approved plans for new addition to plant, consisting of a one-story and basement building, 125 x 300 feet, reported to cost over $65,000, with equipment. General building contract has been let and superstructure will proceed at once. W. P. Katz is president.

Brooklyn, N. Y.—The Continental Container Corporation, recently organized with capital of 200 shares of stock, no par value, plans operation of local plant for manufacture of paper and strawboard boxes and containers. Principal incorporators of new company are Benjamin Schnitman, 103 South Ninth street, Brooklyn, and Kenneth W. O'Hare, 78-46 Eightieth street, Glendale, L. I.

Wausau, Wis.—The Minnesota Mining and Manufacturing Company, Forest street, St. Paul, Minn., has superstructure under way for a new two-story addition at raw material plant at Wausau, used in connection with production of abrasive papers, granular roofing sheets and kindred products. It will be 28 & 83 feet, equipped for mechanical drying service. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is architect.

Menasha, Wis.—The John Strange Paper Company, manufacturer of paper and fiber containers, pails, etc., is increasing operations at mill, particularly for production of paper and fiber pails for candy service. About 50 operatives have been added to the working quota. Present manufacturing schedule will be maintained for an indefinite period.

Amcelle, Md.—The Celanese Corporation of America, Amcelle, near Cumberland, Md., manufacturer of cellulose rayon products, has let contract to the McClintic-Marshall Corporation, 25 Broadway, New York, for structural steel framing for new addition to No. 3 Mill, recently referred to in these columns, totaling about 1040 tons. It is proposed to place work under way on new unit at early date. The entire expansion program at the plant is reported to cost close to $500,000, with machinery.

Indianapolis, Ind.—The White River Paper Company, Inc., has arranged for change of company name to the White River Paper Mills, Inc.

New York, N. Y.—The Sibley Paper Company has leased space in building at 120-22 West 18th street, totaling about 10,000 square feet of floor space, for new storage and distributing headquarters, and sales offices.

Cleveland, Ohio—The Industrial Rayon Corporation, West 98th street and Walford avenue, manufacturer of cellulose rayon products, is running on a capacity schedule at local mill, as well as at branch mill at Covington, Va., giving employment to a full working quota in all departments. Orders on hand assure continuance of this schedule for the first quarter of the year.

Indian Orchard, Mass.—The Fiberloid Corporation, manufacturer of fiber and fiber composition products, has approved plans for new two-story and basement addition to mill, 40 x 62 feet, and will begin superstructure at once. General contract has been let to Ernest F. Carlson, Inc., 1694 Main street, Springfield, Mass.

Lawrence, Mass.—The George W. Dinsmoor Company, recently organized with capital of $50,000, is said to be planning early operation of local plant for manufacture of paper boxes and containers, and paperboard specialties. George W. Dinsmoor, 259 Andover street, city, is president and treasurer of new company.

Doncaster, England—The British Bemberg Company, Ltd., London, England, manufacturer of cellulose rayon products, is concluding arrangements for purchase of additional land adjoining its mill, now held by the city, and will use the property for construction of a new addition. Project is reported to cost over $200,000, with equipment. The present plant is running on a full time production

schedule, giving employment to about 1000 workers in all departments.

New Companies

Brooklyn, N. Y.—The Globe Sand Paper Company, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in sand paper and other abrasive paper stocks. Principal incorporators are Joseph Flatow, 21 Bevy court, and John Pullman, 226 East 54th street, both Brooklyn.

Los Angeles, Cal.—The Pioneer Paper Company has been incorporated with capital of $10,000, to deal in paper goods of various kinds. The incorporators are J. H. Plunkett, Beverly Hills, Cal., and W. G. Hunt, Los Angeles. Company is represented by McCutchen, Olney, Mannon & Greene, Roosevelt Building, Los Angeles, attorneys.

Plainfield, N. J.—Tait, Inc., has been chartered with capital of $10,000, to deal in commercial paper products of various kinds. New company is headed by F. N. Tait, 1309 Randolph road, Plainfield.

New York, N. Y.—The Luffa Fibre Products, Inc., has been incorporated with capital of $30,000, to manufacture and deal in fiber specialties. The incorporators are James V. Kilroe, 36 West 44th street, New York, and William P. Moran, 35-46 65th street, Woodside, L. I.

Brooklyn, N. Y.—H. Engelhard, Inc., has been incorporated with capital of $10,000, to manufacture and deal in paper products. The incorporators are Harry Engelhard, 93 Schenck avenue, and Benjamin Schreiber, 435 Sutter avenue, both Brooklyn.

Wilmington, Del.—The Spear Box Company, Inc., has been chartered under direction of the Corporation Trust Company, Industrial Trust Building, with capital of 200 shares of stock, no par value, to manufacture paper boxes and containers. Walter Lenz is one of the incorporators. The same interests have incorporated the Spear Paper & Twine Company, with similar capital, to deal in paper goods of various kinds.

Brooklyn, N. Y.—Niemand Brothers, Inc., has been incorporated with capital of 200 shares of stock, no par value, to deal in paper goods of various kinds. Henry Simon, 401 Broadway, New York, is company representative.

New York, N. Y.—Empire Abrasives, Inc., has been organized with capital of $20,000, to manufacture sandpaper and other abrasive paper stocks. New company is represented by Samuel Ebenstein, 151 West Fortieth street.

Pulp Continues To Arrive at Albany

ALBANY, N. Y., January 22, 1934.—Activities at the local port terminal have not been hampered much by cold weather and foreign importations of wood pulp continue to arrive here. A shipment consisting of several thousand tons was unloaded here this week when a vessel made its way up the Hudson without the assistance of ice breakers. The cargo came from Sweden and it is understood that it is to be sent to the Hudson Falls plant of the Union Bag and Paper Company. Increased activities for the company have resulted in a steady flow of the Swedish product to this port and it is believed that further importations are planned. New equipment has been added to the facilities for handling at the local port and a record movement is predicted for this year. It is reported that during the past year the foreign shipments handled at the local port were over double the amount of the previous year. Officials of the port look for a large increase in business during the coming year.

Indianapolis Demand Expands

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, IND., January 22, 1934—Most noticeable of the rather featureless market in this section is the gradual expansion of demand. Nothing has been seen as yet that would point to boom times of four years ago, but contracts are being made, orders are being received and bills are being paid. In fact the local trade does not seem much concerned what happens to the dollar if they get a sufficient supply. The passage by Congress of the administration's gold bill was taken as a foregone conclusion and created no comment with the trade here. It is doubtful if anything could be done in a legislative way that would cause much surprise after all that has happened in the last nine months.

The fine paper market is reacting better than it has during some weeks. Much of this is due to orders placed by printers who have been successful in securing state, city and county printing contracts. The general feeling is that the market will advance with the coming of spring and contracts are being signed to protect themselves and the prices that have been quoted. Most of the public contracts, however, were signed on a sliding scale which will give the printer some protection. The coarse paper market is somewhat improved, with kraft and tissues and other items benefitting.

Indiana factories, most of which make strawboard and containers, are producing for current needs. Warehouse stocks are being held to a low ebb, though since inventory has been completed, it is believed these stocks will be increased somewhat. Order files are fairly well filled and a lot of new customers have been developed who have been out of the market to a large extent for some months. Demand for waxed paper, mostly for the bread trade, continues good with factories working practically to capacity. Prices in all the container trade are firm and seem to be steadier than they have been for some time.

Even the paper stock men seem a trifle more cheerful. Orders are coming from the mills in a larger volume than formerly and the entire price range has been stiffened.

Trans-O-Meter for Testing Transmittancy

The Westinghouse Trans-O-Meter provides a simple and quick method of determining the transmittancy of paper, fabric, film and other flat materials. For instance printing which shows through the paper is always objectionable and this instrument enables both maker and user of paper to select and hold uniform a grade which has a suitable low degree of transparency.

The principle of operation is extremely simple; a lamp shines on a Photox light sensitive cell (under the circle W monogram) and the output of the cell registers on the instrument to the right. With no paper between lamp and cell, the instrument is adjusted to read 100 since this condition represents 100 per cent transparency. When paper is inserted under the cell, the reading shows the percentage of transmitted light. There is a regulator, by means of which the lamp voltage is held constant.

Connecticut Valley Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 23, 1934.— The Connecticut Valley Division of the American Pulp and Paper Mill Superintendents' Association met Saturday afternoon for a business session following which a dinner dance was held, about 100 attending. John P. Kennedy of this city who was elected chairman last fall presided and headed the dinner dance committee.

PAPER TRADE JOURNAL

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COMING EVENTS

American Paper and Pulp Association, Fifty-Seventh Annual Convention Waldorf-Astoria Hotel, New York, February 19-23. Annual Meeting, Friday, February 23.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria Hotel, New York, February 19-22. Luncheon, Thursday, February 22.

Salesmen's Association of the Paper Industry, Annual Meeting, Waldorf-Astoria Hotel, New York, Tuesday, February 20.

New York Association of Dealers in Paper Mill Supplies, Annual Banquet Hotel Commodore, Wednesday, February 21.

National Paper Trade Association of the United States, Convention, Waldorf-Astoria Hotel, New York, February, 19-21.

STABILIZING THE DOLLAR

The first steps in the stabilization of the dollar were taken last week when the House of Representatives on Saturday passed the President's monetary bill providing for the revaluing of the dollar between fifty and sixty cents and setting up a stabilization fund of $2,000,000,000. It is expected confidently that the bill will be passed by the Senate and become a law without substantial amendment in a brief period.

The passage of the bill as requested by the President was according to expectation. The majority for the measure, however, was amazing, 360 members favoring and only 40 members opposing. This indicates clearly that President Roosevelt retains his complete control over Congress and will likely be able to put through his program expeditiously and without any serious interruptions or changes.

Because of the passage in the House of the money bill by so overwhelmingly and unexpected a majority, optimism and hopefulness have perceptibly increased. B. C. Forbes, the well known financial writer, says that the prevailing disposition now is to take it for granted that Congress will refrain from enacting any seriously upsetting legislation, that President Roosevelt will seek to make experiments already launched work smoothly rather than spring additional revolutionary innovations, that NRA and other Washington officials will favor cooperation rather than coercion, and that, somehow, ways and means will be devised to supply the Government with the many billions of capital its recovery program involves.

In short, an increasing number of men of affairs now feel that they can concentrate upon their business and formulate plans with little fear that any major disturbance will emanate from Washington or elsewhere.

The alarm which spread so widely among the public when the "50 to 60 cents dollar" was announced, has greatly subsided since it became manifest that nothing untoward immediately resulted.

Uneasiness has also abated in the financial world over currency prospects. Even die-hards deeply rutted in tradition are becoming convinced that return to a 100 cents gold dollar is now out of the question; and they are throwing off some of their apprehension over the probable outcome on the new currency deal.

Perhaps one of the best indications that the better feeling that has been apparent recently is not altogether psychological, but is based on real expansion in trade and industry, is the fact that production of steel ingots last week was reported at 34.2 per cent of capacity by the American Iron and Steel Institute, representing a rise of 3.5 points, or 11 per cent, over the previous week. It equaled the rate reported for the week ended on December 23 and there had been no higher rate since late in October.

The report caused the steel trade to make a still more favorable appraisal of its near-by future because of the rapid pace of recovery from the dip at the turn of the year. The trade sees the probability of a 50 per cent rate being attained soon, but regards the time as uncertain.

NO CHECK IN BROADENING DEMAND FOR PAPER BOXES

The strong upswing in the production and sales of paper boxes, which started last spring, continued with only minor modifications until the close of the year. Orders which were placed conservatively for fall supplies on the basis of 1932 requirements evidently were insufficient after the Christmas buying started, as stocks soon became exhausted and reordering grew almost without interruption until the last week in December. Activities followed closely the improvement in general business during the last six months with the result that sales, prices, and collections made a better showing than in the comparative period of 1932, with the increase sufficient to overcome the slight lull which appeared during July and August. Some of the large manufacturers were able to show a profit on operations during the last half of 1933 for the first time in three years, due not only to the increased sales but to the greater firmness of the price structure.

During the early summer months, when prices of raw

materials rose as much as 100 per cent, it was feared that the heavy advance buying of manufactured goods would result in substantial carry-overs at the year-end. The demand for containers of all sorts, however, was quickened to such an extent that most of the merchandise was moved, as there was no surplus of consequence at the beginning of the year. The favorable gains of 1933 are expected to be extended more decisively in the current year, with heavy dependence being placed on attractive packages to carry these campaigns to a successful conclusion. The outlook is more encouraging than at any time since 1929, because of the greater stability in producton, wages, and prices, and the elimination of unfair competition, since all branches are now operating under the code, according to a survey of the paper-box industry which has just been completed by Dun & Bradstreet, Inc.

During the summer months, manufacturing was at its peak, because customers were buying in anticipation of the higher prices. This resulted in a slowing down of orders during September, October and November, as business ordinarily placed in those months was on the books as early as July. Starting the latter part of November, however, orders gained from week to week right up to the end of the year, with most manufacturers reporting the largest holiday shipments in four years. Including all divisions, production in 1933 averaged from 10 to 30 per cent larger than in 1932, due not only to improved general conditions, but to the adoption by many large concerns of lighter materials for shipping purposes.

The new year has opened with orders ahead of production capacity, necessitating many of the leading plants to adopt a twenty-four hour a day schedule, with present production nearly 100 per cent greater than in the corresponding period of 1933, when the operating rate had declined to nearly an all-time low. While the volume of orders received thus far this year in some divisions has been somewhat below expectations, manufacturers attribute this to an attitude of waiting which has been assumed by many buyers, as there are no evidences of surplus stocks in most lines.

On an average, sales in 1933 ranged from 10 to 20 per cent in excess of the volume handled in 1932. The folding-box division evidently is in a stronger position, because of the varied uses, increased demand from industrial sources, and a stabilized price condition. No small part of the increased demand during the last two months has emanated from the liquor trade, and in many instances manufacturers were unable to keep abreast of the orders. In fact, sales of corrugated containers started to rise last May, with demand continuing strong until the end of the year, with the exception of a slight let-down during November and December. This resulted in bringing the total sales for the year for many manufacturers to approximately 65 per cent above the 1932 level.

In folding and set-up boxes, sales in 1933 gained as much as 50 per cent in some districts, with demand particularly strong from the pharmaceutical trade. Sales of set-up boxes are slightly above those of 1933 for the first quarter, and big food companies are buying more liberally than they did last year. Orders for boxes for shoes, hosiery, shirts, underwear, and kindred lines have been coming in briskly since the first of the year, and the post-holiday demand for confectionery boxes has been large, although confined chiefly to the cheaper grades. Shipments to the automobile industry are almost double what they were at this time a year ago.

While prices of many raw materials in 1933 rose 60 to 100 per cent, all of this increase was not passed on to the buyers, as many manufacturers were in possession of stocks which had been accumulated before the market firmness developed. This led to considerable variation in the quotations which were made to consumers, but these generally were 10 to 15 per cent higher on staple goods and 15 to 20 per cent higher on fancy packages when the year ended than they were at the beginning. In some cases, selling prices of folding boxes advanced as much as 30 to 35 per cent, while paper board was marked ahead 55 to 75 per cent. Following the rapid rises during midsummer, prices became fairly well stabilized toward the close of the year, with firmness now apparent in nearly all lines. When the full force of the seasonal demand will have become manifest around February 1, increases are expected, although these doubtless will be less abrupt than those during the peak of the market movement last year.

Economy Effected at Bogalusa

Most gratifying economy of operation has resulted from the changes which were recently completed in the Power Plant of the Bogalusa Paper Company, Bogalusa, La. There is a large demand for process steam as well as for electric power so a Westinghouse 7500 kw. non-condensing bleeder turbine was installed.

The primary object is to supply steam at constant pressures of 150 and 25 pounds at the bleed and exhaust points for process work and at the same time to generate as much electrical power as possible by utilizing process steam, all of which passes through the turbine. Since the demand for process heat varies the electrical energy generated will vary and naturally there are other generators to carry the balance of the electrical load.

A new boiler plant, with new auxiliaries supplies steam at 425 lbs.—700° F.

At present this new equipment, as a whole, is saving not far from $655.00 per day which later will increase to $750.00 per day when its full operating advantages can be utilized.

Union Wins Election

WASHINGTON, D. C., January 24, 1934.—Chairman Robert F. Wagner of the National Labor Board has announced the winning of an election by union representatives at the plant of the West Virginia Pulp and Paper Company at Covington, Va. The election was held under the supervision of the National Labor Board. James F. Dewey of the Department of Labor and Meyer L. Lewis acted as the Board's representatives supervising the election.

The results were: for the Pulp Sulphite and Paper Mill Workers' Union, 813; for the Employees' Protective Association, 690.

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Soda Ash..Liquid Chlorine..Bicarbonate of Soda..HTH and HTH-15..Caustic Soda..Bleaching Powder..Ammonia, Anhydrous and Aqua..PH-Plus (Fused Alkali).. Solid Carbon Dioxide..CCH (Industrial Hypochlorite)

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Coordination of Technical Control, Research and Development with Practical Mill Operation*

By K. A. Taylor[1]

Abstract

An outline is given of the main types of work done by a well organized technical organization. Some of the pitfalls into which technical men may stumble are indicated and the responsibility for and ways of coordinating technical control, research and development with mill operation are shown. A recommended practice to be included in the TAPPI Manual of Standards is suggested.

Some explanation is undoubtedly in order regarding the justification for presenting this paper after the symposium on the same subject held last year under the auspices of the Management Methods Committee. Ample justification for bringing the subject up again lies in the considerable benefits to be derived by both technical men and the industry as a whole from a better coordination of technical activities with mill operation.

At the last meeting considerable discussion was devoted to the relative merits of the technical and the practical man and to the reasons why complete cooperation between the two was seldom obtained. There is no avoiding the fact that the majority of technical men, especially the junior men, do not do a very good job of convincing the practical man that they can be of valuable assistance to him and to the management. Human nature being what it is, this will probably be the case for a long time, at least during our generation. The management which has available a first class technical organization capable of selling itself to the practical operators and securing complete cooperation is very fortunate indeed.

At the same time, while any management will always try to build up the type of technical organization which can sell its services to the practical operators, there undoubtedly are not enough technical men of this type available to fill the key positions in the various technical organizations in the industry. Under these conditions management cannot afford to let the burden of coordination rest entirely on the shoulders of the technical man but must accept its own responsibility in this connection.

RECEIVED Jan. 9, 1934.

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 19-22, 1934.

1. Member TAPPI, Research Department, Oxford Paper Company, Rumford, Me.

As a matter of fact, if we look at the whole matter from the viewpoint of the owners or stockholders of any company, the whole responsibility for coordination rests on the shoulders of management. If technical control, research or development work when well organized and carried out and properly coordinated with operation, results in substantially increased profits, as the experience of some of the most successful industrial organizations appears to establish beyond the possibility of reasonable doubt, then the management is obviously under obligation to make use of these facilities and provide for their coordination.

While no one would deny this as an abstract principle, in practice, in many cases, management has become discouraged after one or two unsuccessful attempts at utilizing the technical tools available and has either come to doubt the value of technical work or has limited it to the minimum of testing work with possibly one or two men who have proven their ability to secure cooperation from the practical operators kept on for trouble shooting purposes. This condition, which obviously limits the employment of the technical man's services is due mainly to the three following factors: (1) The limitations of the technical man in selling his services to the operating staff; (2) the fact that the practical operators, even though they may have become sold on the value of one or two technical men, have never been sold on the value of technical work as a whole, and (3) The lack of experience of management in properly coordinating technical activities with practical mill operation.

This third factor, namely: the lack of experience of management in coordinating technical work and operation, is one which falls well within the scope of work of the Management Methods Committee. It would seem that one of the contributions of this committee might well be to make up for this lack of experience by collecting information regarding the methods used by organizations which have successfully coordinated technical control, research and development with practical operation and from a careful analysis and comparison of these methods develop a recommended practice which would be included in the TAPPI manual. The purpose of the present paper is merely to open up the subject in the expectation that from the criticisms and suggestions which they may bring forth

TAPPI SECTION, PAGE 38

a fairly standard practice may eventually develop. If the recommendation of such a standard practice results in an increased value of the technical man to the industry, then not only will the industry benefit but there will be an increased demand for the technical man's services.

It is realized that this proposed program may receive considerable criticism because there are personal factors involved in the coordination of technical activities with operation which can never be completely standardized. However, these personal factors will probably be always with us and management is accustomed to dealing with personal factors as a matter of routine.

Classification of Technical Work

Different types of technical work present different problems of coordination. Before going into the details of coordination, it may, therefore, be well to classify the various activities which management may request a technical organization to undertake. The following classification is one which we have found very useful.

I. Routine Testing and Control

Under this heading is included:

(1) Routine testing of raw materials, materials in process and finished product.

(2) The maintenance of indicating and recording instruments, meters, etc., throughout the plant.

(3) The supplying of standards and testing information during operation.

(4) The reporting of information on routine operation to the management.

(5) The use of the control department as a central source of information on present and past operation.

II. Sales Development Work

The objective of work under this heading is to manufacture a product of better and more uniform quality, which should automatically result in increased sales. By a product of better quality is meant one which will be more satisfactory to the customer. Under this heading of sales development work is included the following:

(1) Study of customers' requirements and translation of these into numerical values for important physical properties which are written into the specifications.

(2) Development of new methods of evaluating important properties of the finished product where these are not available or of improved methods where available methods are unsatisfactory.

(3) Specific work on improvement of grades to more satisfactorily meet customers' requirements.

(4) Delineation of operating variables for each process and study of the relation of these to quality of processed material or finished product.

(5) Study of the relationship between quality of raw materials and materials in process and the quality of finished product and the establishment of specifications for these.

(6) Development of new or improved methods of evaluation for raw materials and materials in process.

(7) Development of rapid methods for routine testing including indicating or recording instruments where possible for indicating or recording the values of the more important properties.

(8) Development of indicating and recording instruments for indicating and recording values for important process variables where such instruments are not already available.

(9) Development of automatic controls for adjusting process variables to automatically control quality of processed materials or finished product where such automatic controls are not already available.

(10) Development of new grades not radically enough different from regular grades to be considered as new products.

(11) Study of operating troubles and nuisances (such as slime, dirt, curl, etc.) which tend to cause non-uniformity of quality and result in customers' complaints or rejections.

III. Cost Reduction Work

Any work on existing processes which has for its objective a reduction in the final cost of paper as delivered to the customer comes under this heading. Examples are work on less expensive raw materials, decreased usage of expensive raw materials or of power, steam, etc., increased yield in pulping processes and increased production from refining equipment, paper machines, etc.

Some of the work already outlined under sales development work might also legitimately be included under cost reduction work, since improvement of quality or uniformity or elimination of operating troubles and nuisances will reduce the amount of lost production time and the amount of production of unsaleable paper. Such a borderline piece of work will be classified under sales development work or cost reduction work, depending on whether the main objective is increased customer satisfaction or decreased cost.

IV. New Sources of Profit

Work on new processes, new products, royalties and by-product recovery and utilization is included under this heading.

Problems of Coordination

In line with what has already been said the problems of coordination are considered solely from the viewpoint of management. In broad outline these problems can be stated very simply.

The first and most fundamental problem lies in the attitude of management itself. If management has only a half-hearted belief in the value of technical work it can hardly expect the whole-hearted cooperation of the operating staff in coordinating a technical program with practical mill operation.

The second problem involves selling the operating superintendents and through them the foremen and practical operators the idea that technical work can be of tangible value both to them and to the management.

The third problem involves the selecting and organizing of a technical staff which will combine technical ability with the ability to appreciate the problems and viewpoint of management, operating superintendents and practical operators.

The fourth problem involves the organizing of the technical and operating staffs to work harmoniously and wholeheartedly towards the same objectives.

The fifth problem which is not strictly a problem of coordination, but which is essential to the continuance of smooth coordination, is the planning and carrying out of the technical program in such a way that it will yield tangible results the value of which can not be questioned.

The solution of these five problems is essential to the completely successful coordination of technical activities with practical mill operation and obviously any management which has found the solution to these problems has very little further to worry about with respect to coordination.

Recommended Practice for Coordination of Technical Activities with Practical Mill Operation

A management faced with the problem of coordinating

technical control, research or development with mill operation should consider the problems just outlined in approximately the order given.

(1) ATTITUDE OF MANAGEMENT

If a management is thoroughly sold on the value of technical work when properly coordinated with operation this problem is already solved. If, however, the management is still somewhat skeptical the first step is to thoroughly convince themselves one way or the other. In this case a careful study of the classification of technical work already given may be of help. In going over this classification some of the classes of work listed may appear to be of doubtful value for application to immediate problems. These classes should be avoided at least at the beginning of the program.

If a management can find nothing in this list which it believes to be of potential value when applied to their own problems it might as well forget technical work for the time being, since a technical program entered into in this frame of mind is almost certain to be a waste of time and money. If some of the classes of work appear to be of potential value but management is still skeptical of their being carried out successfully to yield results of tangible value, the next step is to study the experience of mills which have already realized tangible results from these classes of work and become thoroughly convinced that the securing of valuable results is entirely a matter of properly carrying out the technical program. Once management has sold itself on the results which it is possible to obtain it is ready for the next problem.

(2) SELLING THE OPERATING SUPERINTENDENTS AND PRACTICAL OPERATORS ON THE VALUE OF TECHNICAL WORK

This is perhaps the most difficult step in the whole coordination program and is well worth the expenditure of considerable planning, effort and time. The careful selection of the first work to be undertaken particularly with respect to the objectives of the work is again an important factor. Most superintendents hold their positions because of qualities of ability and leadership well above the average and if properly approached will readily realize the potential value of certain types of technical work. The selling program can only be partly carried out before technical work is actually started and must be continued until confidence is completely established.

The various steps in the selling process are the same as those used consciously or unconsciously by any successful salesman.

(a) *Securing Attention*

This is no problem for management although it might be a serious stumbling block for the technical man if not backed by management. This is another strong reason for the management and not the technical man carrying out the selling program.

(b) *Creating Interest*

This can be done by pointing out the results which other organizations have accomplished by technical work.

(c) *Arousing Desire*

This can be done by pointing out numerous cases where technical work might help the operating superintendents with some of their own problems. The selection of the first problems to be turned over to the technical staff is again of great importance here. It should not be difficult to sell the value of work which the operating man feels will improve the quality or uniformity of his product, decrease his operating costs or eliminate some operating trouble or nuisance. On the other hand he is liable to be very skeptical of the value of development work on any new processes which would involve drastic changes over present practice, well knowing the operating grief which is liable to occur in the first stages of operation of a new process and the unforeseen difficulties which may turn up in operation to make the process impracticable. It seems axiomatic that the value of technical work should be thoroughly established against a background of successful results in improving quality and reducing costs before the more difficult proposition of selling development work on new processes should be attempted. Development work on a new process which would be a failure if attempted without the whole-hearted cooperation of the operating superintendents may be a complete success if carried out later with their enthusiastic cooperation.

(d) *Securing a Trial*

Once the operating superintendents have become interested in the potential value of certain kinds of technical work and want to see them tried out it should not be difficult to get them to suggest that work be carried out to supply them with some definite pieces of information or provide some definite testing service. At least most of these suggestions can then be worked into the management's own program when it is started.

(e) *Establishing Confidence*

The selection and planning of the first pieces of technical work to be carried out, and the selection of the technical men to carry them out are very important factors in establishing confidence. It is essential that the first work carried out results in some definite tangible value to the operating superintendents which they can see and appreciate and which will convince them that they can utilize the technical man's services in the solution of more of their problems. Work which will fulfill these requirements should be selected for the first part of the program even if other work which has greater potential value but which does not fulfill these requirements has to wait until later in the program.

In proposing or planning any technical work it is wise to avoid even the appearance of the work being used as a check on the operating superintendents for the benefit of management. This applies especially to testing and control work. The widespread use of the term "control" is perhaps unfortunate since it implies in itself such a check.

The responsibility given to control or testing departments varies with different mills. In some cases they have the authority to pass or reject finished paper on the basis of their results. In other cases they merely supply information to the operators and management. There may be advantages for both methods but from the standpoint of coordination the second method is much better. The operating superintendents still retain full responsibility for the quality of product and the testing information becomes a valuable help in making decisions. Once they become accustomed to depending on this information, provided they are being given pertinent and reliable information, they will never want to get along without it again.

So far we have stressed mainly the selling of technical work to the operating superintendents. Once they have confidence in the program the selling of the foremen and practical operators should present very little difficulty if the superintendents have the qualities of ability and leadership which usually go with their positions.

Once confidence has been established there is some danger that the technical program may be swamped with investigations of minor operating difficulties to the exclusion of broader investigations of more potential value. This is another reason why the program should be in the

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hands of the management who should have a broad perspective of the company's problems and who can guide the trend of the work into more profitable channels without losing any of the confidence which has been established.

(3) Selection and Organizing of Technical Staff

This problem is one which we can not do justice to here without making this paper too long drawn out. For a large organization it is best to select a technical director of proven ability and put the problems up to him. He can then select the technical men he requires and organize the program along technically correct lines. Every effort should be made to avoid getting any men into the organization, especially in the key positions, who do not appreciate the viewpoint of the operators and have not the tact to get along at least reasonably well with them. This point of view should be impressed on the technical men when they are taken on.

(4) Organizing Technical and Operating Staffs to Work Together Harmoniously

This should not be difficult if the preliminary work has been well done. At this point the technical men and the operating men should have similar viewpoints regarding the work to be carried out and its objectives. They should now get together periodically with the management present and go over the plan of attack on each problem. Results can also be discussed periodically as the work progresses. In this way the management can see how well coordination has been effected and, if there are any weak links in the chain, take steps to correct these.

If these meetings require too much of the management's time, later on committees can be organized to meet periodically and the results of the discussions reported to management. Still better the operating superintendents and key technical men will get into the habit of discussing the results obtained without any meetings being called and formal meetings may become unnecessary except when some new or important problem is up for discussion.

(5) Planning and Carrying Out of Technical Program

This is beyond the scope of the present discussion and has only been included because it will greatly influence the degree of confidence which the superintendents and practical operators will continue to have in the value of technical work. If negative or unsuccessful results are continually obtained it will be impossible to maintain the same degree of confidence in the program. On the other hand a few successful results will greatly strengthen the feeling of confidence.

Once management has paved the way for smooth coordination and has selected certain problems to be attacked, the technical organization must stand or fall on the results it obtains. Problems which are too difficult for early solution should not be attempted in the first stages of a technical program but if the general quality of results on carefully selected problems does not justify normal expectations, then there is obviously something wrong with the technical organization and it should be weeded out and reorganized rather than allow it to continue to function unsuccessfully and lose the ground which has already been gained.

If the technical program has been well carried out with good coordination and the results are highly successful the management should be very careful in giving credit for the work. All of the credit should not be given to the technical men who have worked out the solution to a particularly important problem but the superintendents and operators should receive full credit for their cooperation, without which the work would quite probably have been of little value.

In closing it is again emphasized that the opinions expressed in this paper have not been stated dogmatically but have been put forward to stimulate discussion, so that eventually the collective experience of the industry with the problem of coordinating technical work with operation may be analyzed carefully and a practice worked out which may be recommended, with some degree of confidence, to managements faced with this problem.

Many valuable suggestions for this paper were received from the management, operating superintendents and technical staff of the Oxford Paper Company. These are gratefully acknowledged.

Destruction of Paper Hastened by High Temperature and Humidity

The Bureau of Standards has found that the deteriorative effect of acidic atmospheres on paper is greatly accelerated when either the temperature or the humidity of the air is increased. Previous work had proved conclusively that sulphur dioxide passing into the air from burning fuels, and forming sulphuric acid, is a distinct hazard to books and manuscripts contained in libraries situated in congested areas. When book and writing papers were exposed to the action of contaminated air of this kind for ten days, the sulphur dioxide decreased the folding endurance considerably, at a temperature of 86° F. and a relative humidity of 65 per cent. When the temperature was increased to 104° F., the rate of loss of folding endurance was doubled, and a similar or greater effect occurred when the relative humidity was raised to 80 per cent. The Bureau has already pointed out the inimical effects in other ways of high temperature and humidity on record materials stored in libraries.

Eastwood-Nealley Corporation Joins TAPPI

Again one of the most progressive companies in an allied industry becomes a member of the Technical Association of the Pulp and Paper Industry.

In this case the industry is that of the wire cloth manufacturers and the company is the Eastwood-Nealley Corporation of Belleville, N. J., makers of fourdrinier, cylinder and washer wires, brass and copper wire cloth, valves, cocks and fittings in perfection bronze for acids, and steam specialties.

This old company was founded by John Eastwood and has been so long identified with the paper industry as to require no introduction. Is there anyone in the industry who has not had the enjoyment of hearing the inimitable Jean Bechard, the genial traveling representative for Eastwood Wires sing his famous "Allouette"?

H. G. Specht, secretary of the Eastwood-Nealley Corporation, will represent his company in the Technical Association of the Pulp and Paper Industry.

Delaware Valley TAPPI to Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will hold its next meeting on Friday evening, January 26, at the Engineers Club, Philadelphia.

Arthur Dreshfield of the Paper Makers Chemical Corporation, Kalamazoo, Michigan, will be the principal speaker and will discuss Repellant Agents for Paper.

Note: The editor not knowing what a repellant agent was looked the matter up and found that it means in this case sizing materials.

Preliminary Notes on Continuous Refining*

By D. Manson Sutherland, Jr.[1]

Abstract

The preliminary notes on continuous refining give the following indications:

1. That temperatures higher than normally experienced in batch refining are to be expected.

2. That the refining actions now produced by the batch system can be obtained in one or more continuous machines which must be synchronized in capacity with the paper machine.

3. That continuous sizing, coloring and loading systems must be further developed to work in conjunction with continuous refining.

4. That some progress is being made in the commercial development of continuous refining.

The art of refining in beaters and jordans is the subject of much controversy among papermakers and technical men in the industry consequently any attempt to develop a complete continuous refining system offers an opportunity for even more discussion and disagreement. It will appear to some that a proper and accurate understanding of the function of beaters and jordans (which I will refer to as the batch system) should be arrived at before any serious attempt is made to develop a continuous system but many farsighted manufacturers have reached the conclusion that a continuous refining system must and will be developed sooner or later. Obviously practical papermakers and investors would not advocate continuous refining unless they were convinced that some definite financial advantages would accrue. Moreover papermakers who take a long and broad view of the future realize that the struggle to improve quality and decrease costs will go on indefinitely and only those who keep their minds open and avail themselves of improvements in equipment can survive and surmount keen competition.

In order to justify research on and development of continuous refining systems it is necessary to comment upon present equipment, practice and theory to some extent although it is not my intention to point out all of the advantages and disadvantages in the batch system as now constituted. It is sufficient only to point out that the operation of a beater is to brush out or rub out the fibers and develop fibrillæ according to the stuff properties desired from any grade of pulp. This operation may take from twenty minutes to eighteen hours, after which the beater stock is dropped into a beater chest. In practically all mills it is common practice to pass the beater stuff through a jordan in order to cut the fibers and improve the formation and quality of the finished sheet. In general it might be said that the beater maintains fiber length and develops tearing strength while the jordan cuts the fibers to some extent and by closer formation develops bursting strength. Exceptions can be raised to this general statement but it is unnecessary to go into full details in this paper regarding the treatment of all grades of pulp presumably required for a large number of grades of paper but it is important to keep all of the advantages of the batch system in mind when considering continuous refining as the experience of many years in the use of this system cannot be lightly cast aside. In fact it is important that none of the advantages of batch operation be overlooked otherwise the development of a continuous refining system will be delayed.

Before the problems of a continuous system can be undertaken in a reasonably efficient way it is necessary to take into consideration the present day conception of the action of beaters and jordans but again we enter into a field of controversy. Since some progress has been made in continuous refining on a commercial scale it is necessary to state the theory of refining which has been adopted in the continuous refining system now under review. In a continuous refining system it seems obvious that the pulp must be refined in a comparatively short period of time consequently the general theory of hydration obtained by prolonged treatment in a beater must be reconsidered. It is common practice to refer to a beating time in minutes and hours but a beating time of four hours, for instance, is very misleading. It is true that four hours are consumed in treating a given amount of pulp in a beater but it is necessary to separate the actual time the fibers are between the roll and bedplate from the total time consumed and it will be found that the actual beating time is small compared with circulation time. A detailed study of refining between a beater roll and bedplate will show that the action can be quite rapid although intermittent.

It is often thought that time is an essential factor in hydration but work on continuous refining has shown that time is relatively unimportant. The theory expounded by Strachen (*1*) and others that the felting power of fibers is due to fibrillae developed by mechanical means and not to chemical reactions with water seems to be upheld by continuous refining tests. I have therefore avoided reference to the theory of chemical reactions since it is not necessary to the objects of this article to enter into any such discussion.

Mechanical Actions and Their Effects

In the development of a continuous refining system it is only necessary to consider mechanical actions which may be listed as follows: rubbing, cutting, squeezing, crushing and heating.

The effect of these mechanical actions can be stated as follows:

1. To soften the fiber and making it more pliable.
2. To increase its surface area by developing fibrillae and, in some cases, gel.
3. To reduce average original fiber length.

The batch process does all of these things as is well known but it has not seemed possible to obtain the above actions and effects by present day continuous refiners alone, for instance, a jordan will not produce singly or in series the same effects or stuff properties as a beater and jordan in combination.

I do not expect universal agreement on this statement but the majority of papermakers will sustain this contention.

Before progress can be made in continuous refining it is necessary to know something about the mechanical actions of beaters and jordans and how they are obtained. A typical modern beater and jordan design shows the following main differences in refining surfaces:

	Beater	Jordan
Pressure or contact area	300 square inches	400 square inches
Impact inches	150,000 per minute	500,000 per minute

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1. Member TAPPI, consulting engineer, Trenton, N. J.

Some high speed jordans recently introduced into mills will show a much higher rating of impact inches but with no corresponding increase of pressure or contact area.

The gap or clearance between the refining surfaces of beaters and jordans is a variable under manual control and plays an important part in obtaining the desired stuff properties, but if we consider that the gap or clearance between refining surfaces are alike then it appears that the main differences are pressure area and impact inches. Those interested in batch operation can, perhaps explain the design of their machine in more detail but for anyone interested in continuous refining it is sufficient to know that the present day jordan has insufficient pressure or contact area to produce the rubbing, brushing and squeezing action of a beater. That this is already known is shown by the tendency to increase the width of jordan bars. A great deal about the mechanism of batch refining must be left unsaid in order to devote some space to the subject of continuous refining which has been defined as follows: *Continuous refining comprises that method which maintains a continuous flow of pulp suspension while the incoming pulp is being refined to the desired stuff properties.*

Benefits of Continuous Refining

The advantages expected in a continuous refining system are:

1. Uniformity of stuff properties.
2. Varying capacity while maintaining required stuff properties uniformly.
3. Reasonable range of flexibility in stuff properties.
4. Lower power costs.
5. Less labor and supervision cost.
6. Low maintenance cost.
7. Lower cost per ton of paper.
8. Less average dirt count.
9. Less chests, pipework and valves.
10. Less floor space.

Experiments with Disc Type Refiner

In order to make my own studies of a suitable machine for continuous refining it was considered advisable to work on plane discs instead of cones as in jordans, because discs cost less and are more easily machined to any accurate parallel fit but the principles for efficient continuous refining can be applied to slight or sharp tapered cones. Investigations on available commercial machines having two oppositely revolving discs or one disc stationary and one revolving were carried out. Some were equipped with metal discs and others with stone discs. We were unable to obtain stuff properties equal to a beater and jordan combination and therefore made arrangements to install a standard attrition mill in my own laboratory. It is not within the province of this paper to detail the failures experienced in our early tests but after two years of continuous efforts we were able to refine raw sulphite having an initial Green freeness of 550 cc. down to 20 cc. in one pass and obtained stuff properties which made an excellent sheet of glassine on a commercial paper machine. Furthermore the stuff properties usually obtained in a beater viz. "hydration" and tear were obtained as well as the cutting action of a jordan.

Tests were made on our laboratory refiner by papermakers, engineers and chemists from several prominent papermills and covered every fiber from leather to cotton. The outstanding feature was maintenance of relatively high tear even in slow stuff. Tests were made almost entirely on artificial stones and one pair was found to be capable of producing every practical paper range of stuff properties merely by adjusting the gap or clearance between the refining surfaces. The results of tests made by outside organizations convinced me that the prospects of producing beater and jordan results between a pair of stones was bright and a commercial unit was designed and built to produce from 10 to 25 tons per day depending upon freeness drop required.

It must be noted that at this stage of our development we had only theories to explain the treatment on the fibers which, however, produced stuff properties closely approximating laboratory ball mill tests. Our laboratory arrangements did not permit extended runs and the refiner was fed by hand from buckets. We did, however, conclude that since we obtained the best stuff properties of good beater and jordan practice we must have used the essential requirements to produce brushing, squeezing and cutting. A number of new theories were added such as spinning and rolling which was plainly noticeable in some tests. The use of porous stones was also considered as another factor although there was much controversy on this point.

Mill Scale Tests

Our commercial unit was tested on raw sulphite over a period of months in a prominent mill and carefully prepared records were kept. As usual difficulties were encountered but we finally reached a standard of performance which justified a paper-machine run. In order to avoid interruption of regular production we refined the sulphite in one pass on a Saturday morning and the refined stuff after being stored in the beater and machine chests over Sunday was run over the paper-machine at the start up on Monday morning. The paper-machine was equipped with a jordan and it was decided not to change the piping so as to by-pass but allow our stuff to pass through with the plug backed off. The report on this test is as follows:

TABLE I.

Furnish: Blend of sulphite pulps, freeness 620 cc. Green.

Stuff Properties	Continuous Refining	Batch System Four Beaters and one Jordan
From Refiner	370 cc	
From Jordan	295 cc	
From Beater		410 cc
From Jordan		340 cc
Sheet Properties		
Basis Wt. 25x38x500	25.0	26.0
Grams per square meter	36.4	37.4
Percent burst	41.0	33.9
Percent tear	96.0	109.5
Power consumption H.P. hours per ton	1060	965
Capacity in tons	11.5	10

Notes:

1. No broke was used in the continuous refining test.
2. British standard procedure was used for all determinations.
3. Mill Inspection Department expressed the opinion that continuous refining sheet was "a little too well closed."

It will be noticed that the jordan when backed off reduced the freeness only 80 cc. and our power consumption was approximately 10 per cent higher than that estimated for four beaters and one jordan. In subsequent refining tests the power consumption was reduced and production increased until the following results were obtained:

TABLE II.

Furnish: Raw sulphitie 620 cc. freeness Green.

CAPACITY TONS	FREENESS GREEN	H.P. HOURS PER TON
29.0	465 cc	465
18.4	379 cc	810

Hand sheets made from the 370 cc stuff gave the following results:

	% BURST	% TEAR	FREENESS GREEN
Continuous refining commercial scale	34.6	110	370 cc.
Standard laboratory refiner	36.2	105	430 cc.

Generally speaking the results so far indicated that it was possible to equal the action of beaters and jordans but the results could not be considered satisfactory since the commercial machine would not produce the full range of stuff properties required for all grades of paper. The results were satisfactory for soft papers but it was consid-

ered necessary to continue our studies and tests until it could be shown that very slow stock could be produced in one pass, in other words, the refiner must be capable of reducing raw sulphite to 20 cc. Green freeness with reasonable power consumption.

Further commercial tests were then arranged for in a glassine mill which is noted for accurate control and excellent products. Under the conditions imposed by the competitive batch system in use it was necessary to refine from 7 to 10 tons of sulphite per 24 hours from 550 cc. Green to 20 cc. The requirements therefore were more severe and difficult than in the tests already reported on above. The tests were carried out over a period of 6 months and 11 paper-machine trials were made. Considerable difficulty arose because the refiner would not produce stuff with a freeness of 20 cc. It was apparent that the refining elements were not proportioned so as to give the correct amount of beater and jordan action or expressed another way the refiner gave too much beating and not enough cutting.

As soon as the correct area and impact inches were found it was possible to reduce the sulphite down to approximately 100 cc. and with further modifications 20 cc. freeness could undoubtedly be obtained. Evidence to show that the beater and jordan effect had been obtained in one pass is shown by the following data:

TABLE III

Furnish: Several grades of sulphite, freeness 500 cc Green.

STUFF PROPERTIES

Flow rate cc per minute						0
Average freeness Green after refining						95 cc
Coarseness modulus						286
Shrinkage per cent						7.9
Classification tests	on	on	on	on		through
	20.0	40	100	200	200	mesh
	26.3	26.2	21.7	11.4	14.5	

HAND SHEET PROPERTIES

Basis Wt. (lbs. per ream)	59.4
Apparent Density (lbs. per point)	13.3
Mullen (pounds per square inch)	54.0
Folding strength (d.f.) M.I.T.	856.
Tearing strength (grams)	77.

The above tests were made in two separate laboratories belonging to companies having excellent technical staffs. Attention is particularly called to low shrinkage and high tear produced in comparison with laboratory ball mill results obtained by the laboratory operators.

The results so far have been obtained by adjusting the amount of rubbing surface to cutting edges and increasing the dwell period during which the fibers are held between the refining surfaces. Additional mill tests are being arranged for and further details will be placed before you as soon as the remaining factors are developed.

The continuous refining tests already made have brought out important points which have a bearing on future developments and in order to guide those interested in this development references can be made although supporting data on some points is not available at this time. Since the feasibility of obtaining continuous refining results equal to the best average commercial batch practice has been demonstrated it must be remembered that the ideal continuous refining system is one in which a continuous flow of pulp suspension is maintained while obtaining the desired stuff properties. This means that a single continuous refiner or several in series must produce the varying amount of pulp required for different weights on the paper-machine and still maintain the required stuff properties. It may not seem difficult to have variable capacity while maintaining reasonably constant stuff properties but if more than one continuous refiner is used to replace the beaters and jordans accurate means of synchronization will be necessary.

Temperature Effects

Some objections to high temperature refining have been made but in my continuous refining system the temperature rise takes place between the discs at a very rapid rate, possibly one-third of a second, consequently it cannot be said that the fibers are subjected to a high temperature and pressure for any length of time, and, in an ideal continuous refining system, the temperature of refining would be lowered at the mixing box of the paper-machine.

Schwalbe and Robinoff (*2*) have shown that pure cellulose undergoes very slight change on being heated with water at pressure up to 20 atmospheres; a temperature of 150 deg. C. or 302 deg. F. should not be exceeded, however, as the decomposition becomes noticeable at this point. It would appear therefore that a refining temperature of 165 deg. F. is safely below the maximum limit where decomposition is likely to occur.

One of the most important results arising from continuous refining is temperature rise since there is less opportunity for radiation losses than in a batch system. In my tests a temperature of 140 deg. F. was reached when a slowness on sulphite of 100 cc. Green was obtained and the excellent stuff properties shown in Table III will come as a surprise to many when the outgoing temperature is considered.

Another objection raised to high temperature refining is that sizing is not as effective as at low temperatures and coloring may be effected. I have not found any difficulties but if any should develop some method of sizing and coloring must be found that is effective at the temperature produced by continuous refining. It should be noted that the higher temperatures are only produced when slow stock suitable for glassine is being made and it is common practice to assist the drainage of glassine stock on the wire by injecting live or exhaust steam into the stuff when the batch system is used for refining.

Another important indication is the relation of temperature to freeness. We have constantly observed that under a certain set of operating conditions we could judge the freeness quite closely by outgoing temperature. Two sets of readings are shown in Table IV:

TABLE IV

Furnish: Raw incoming freeness 620 cc Green.
Average incoming temperature 95 deg. F.

Temperature deg. F.	122	130	132	139	140	146	150
Freeness (Green)	490	410	405	360	385	300	

Furnish: Raw sulphite and broke incoming freeness 550 cc Green.
Average incoming temperature 77 deg. F.

Temperature deg. F.	106	125	125	136
Freeness (Green)	205	165	125	109

In the event that further investigations show this relationship to be correct enough for practical operations we shall be able to control the uniformity of stuff properties to a remarkable degree and provide the operator with a simple indicator which will record his results every minute of the day. Laboratory checks will only be required at intervals after standards have been adopted by actual practice.

Still another possibility is the accurate determination of refining efficiency. In my studies attempts have been made to determine the efficiency of my methods by calculating the input into the motors in B.t.u. Some losses are due to radiation in motors, bearings and casings which are more or less constant but the refiner that delivers the highest percentage of B.t.u. to the pulp suspension while maintaining the optimum stuff properties should be the most efficient from a power consumption standpoint.

Research and development work is being undertaken on a commercial scale by others so that more data will be available in the future but in the meantime I hope that these preliminary notes on continuous refining will be helpful to all concerned in the advancement of the technique of paper-making.

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(2) Schorger, A. W., "The Chemistry of Cellulose and Wood," p. 361. McGraw-Hill Book Company, New York, N. Y.

Switchgear Developments of Interest to the Pulp and Paper Industry*

By G. M. Reed [1]

Abstract

The trend in modern switchgear is exemplified by the increasing use of equipments shipped completely assembled, and therefore requiring very little time and expense in installation. The trend is also toward enclosed switchgear offering excellent protection to apparatus and to operators. Improved methods of arc interruption in oil circuit breakers, better contacts, both fixed and movable, better insulation, and the use of enclosures have all combined to result in lower maintenance. Accessibility of parts has not been lost sight of in both open and enclosed equipments, even though more compact designs are being produced. On the whole, switchgear available for the Pulp and Paper Industry today possesses qualities which make it more reliable and serviceable with very little attention.

While switchgear in a pulp and paper plant is only an accessory to the industry, nevertheless it is of great importance because the steady process of manufacture and often the quality of the product depends upon the efficiency of the control and the continuity of the supply of electrical power used.

To meet the requirements of the pulp and paper industry, the switchgear should possess the following qualifications: ease and economy of installation, compact construction, protection to apparatus and safety to attendants, low maintenance, accessibility of parts, thorough insulation, and low fire risk.

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[1] General Electric Company, Schenectady, N. Y.

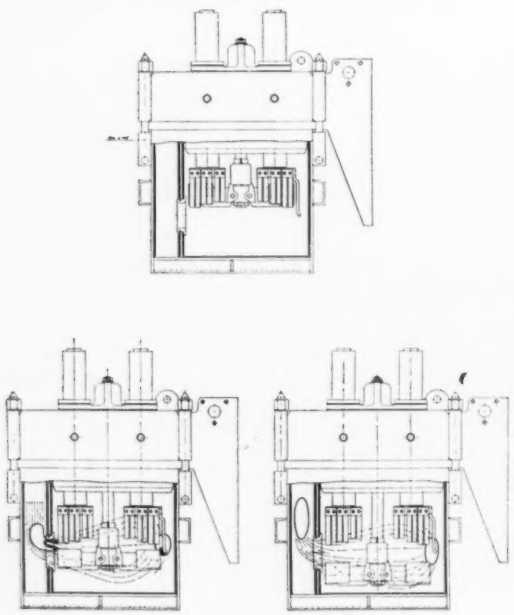

Fig. 2
Diagrammatic explanation of the method of arc interruption in an oil blast oil circuit breaker.

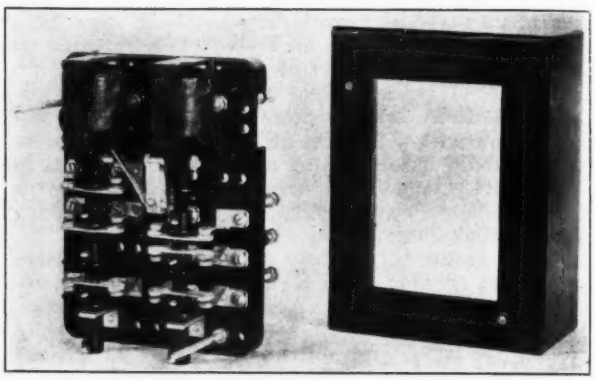

Fig. 1
Plain break motor starting oil circuit breaker equipped with several arcing fingers to insure maximum service under severe operating conditions.

Ease and Economy of Installation

It is very desirable that installation require relatively little time and attention. The switchgear, therefore, should be completely assembled, wired and tested in the factory and shipped in completely assembled units or groups of units insofar as transportation and handling facilities permit. Installation now becomes little more than lining up the units or groups of units, splicing buses, and connecting cables.

Compact Construction

In most manufacturing plants space for switchgear is at

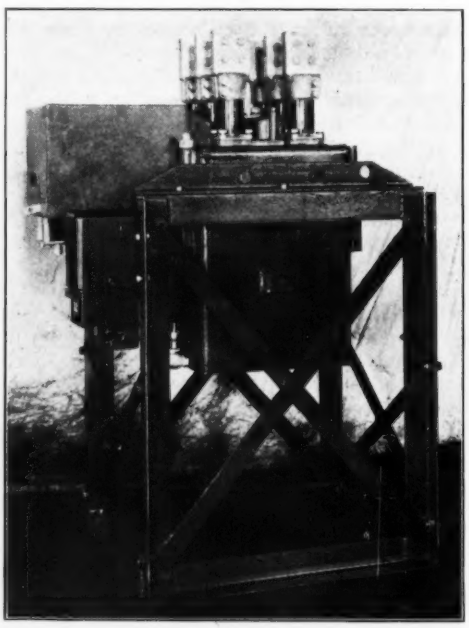

Fig. 3
A 2000 ampere 7500 volt oil blast oil circuit breaker with its "built in" trip free solenoid operating mechanism mounted on a heavily reinforced angle iron unit frame.

a high premium. Modern developments have resulted in a compact gear requiring relatively small floor space and head room. In most instances, the gear will permit increased interrupting capacity as well as increased current carrying capacity without the use of additional space. Increased capacity in switchgear may be required not only by additional manufacturing facilities, but by the system of interconnections or the concentration of electric power by the utility supplying it.

Protection to Apparatus and Safety to Attendants

Protection to apparatus and operators is an essential in electrical equipment as in manufacturing machinery. This is accomplished in modern switchgear by the use of dead front and enclosed types. Metal enclosures also provide isolation and are reasonably dust proof, exclude vermin, and act as safeguards for attendants.

Low Maintenance

Oil blast oil circuit breakers with their short arcing times and small amount of oil deterioration greatly reduce their maintenance. Silver-faced contacts require little attention. Metal enclosures keep apparatus clean and reduce up-keep of insulation to a negligible amount. Maintenance cost of switchgear, therefore, is reasonably low and can be compared favorably with the maintenance of the equipment for the industry.

Accessibility of Parts

Accessibility is essential to low maintenance for inspection and adjustments. Non-enclosed equipments lend themselves easily to accessibility with perhaps some sacrifice to safety of operators. Enclosed equipments may, at first thought, seem rather difficult of access. However, many parts of such equipments are so designed and fabricated and are so protected by enclosures that they require no inspection or maintenance. Other parts which do require it, are made accessible by means of metal plates or doors.

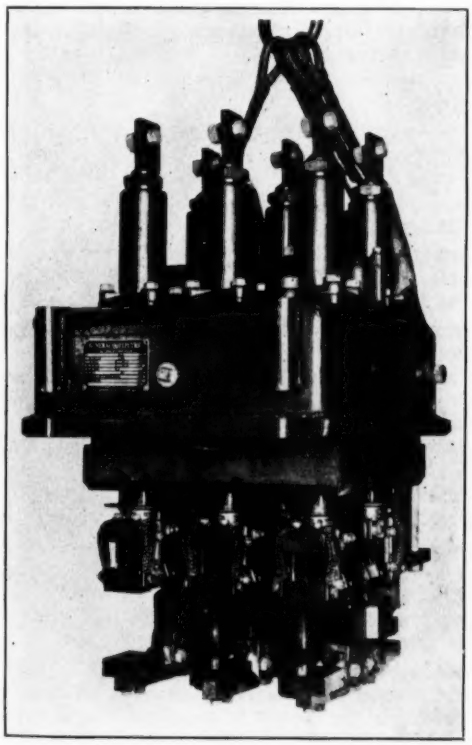

Fig. 4
Operating unit of a 600 ampere oil blast oil circuit breaker removed from its tank showing the specially constructed arcing fingers permitting 10,000 operations under full load without maintenance of contacts or oil.

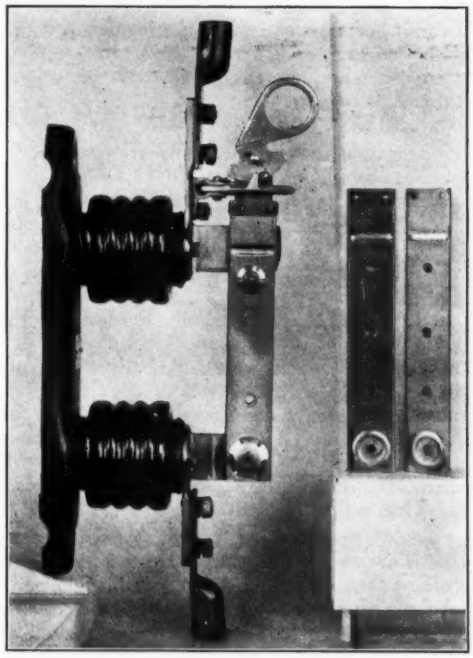

Fig. 5
Standard 1500 volt 800 ampere disconnecting switch equipped with silver line contacts.

Thorough Insulation

All apparatus used more than meets the requirements of the American Institute of Electrical Engineers. Dielectric tests of assembled gear are made in the factory to insure proper spacing between live parts and to ground. As an additional safety factor in some classes of equipments the buses and interconnections are completely insulated for full voltage.

Low Fire Risk

Metal enclosures act as a protective barrier, tending to isolate fires which may originate within the apparatus, as well as protecting the entire equipment from fires within the plant itself. Oil is not generally used for insulation in the various parts of the gear and the danger from fires originating within the apparatus due to overheating, etc., has been practically eliminated.

A few of the recent switchgear developments which embody the essential requirements of the pulp and paper industry are as follows:

Oil Circuit Breakers

It is generally agreed that during the past few years there has been an unusual advance in the development of circuit interrupting devices. Oil circuit breakers now interrupt their circuits in less time than heretofore, are built of rugged construction, and require far less maintenance of contacts and oil.

Fig. 1. illustrates a standard 7.5 kv. 400 ampere plain break oil circuit breaker which has been successfully used for motor starting for some time. It is equipped with special arcing contacts of a rugged design to permit many operations.

The arcing contact on the movable blade is of heavy brass and extends into contact further than the main cur-

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rent carrying part of the blade, thus allowing for considerable burning before any reconditioning is necessary. On the stationary contact the arcing fingers are longer than the main current carrying fingers and are separated from them by a space sufficient to prevent the arc from jumping to the main contacts.

Newer designs of higher interrupting capacities (50,000 kva and above) employ the oil blast principle for arc interruption. In this type of breaker there is an enclosed chamber filled with oil completely surrounding the contacts. Three sides and the bottom of the chamber are formed by the tank and the fourth side by a baffle plate which has three openings or ports, one port being adjacent to one pair of contacts on each pole. As soon as the contacts separate, the resulting arc produces a gas pressure in this chamber, displacing a volume of oil which must be forced through the exit ports. These openings are so located that the oil must pass directly through the path of one of the arcs in each phase and at an early current zero, this stream of solid oil has sufficient dielectric strength to prevent reestablishment of the arc and the circuit is interrupted. This action is illustrated in Fig. 2.

Most solenoid operated oil circuit breakers now have their solenoid mechanism built in as an actual integral part of the breaker, thus making a complete unit and one which requires no additional assembly or adjustment during installation. Fig. 3 illustrates a standard 7500 volt, 2000 ampere oil blast oil circuit breaker with a built in solenoid mounted on an open frame.

Contacts on oil blast breakers have also been made to withstand many operations required in motor starting and jogging service. Fig. 4 illustrates a standard 600 ampere 15,000 volt 100,000 kva oil circuit breaker designed to withstand 10,000 operations at normal load current without maintenance of contacts or oil. The main current carrying contacts are the finger and wedge type, the arcing contacts of the butt type (easily removable) consisting of

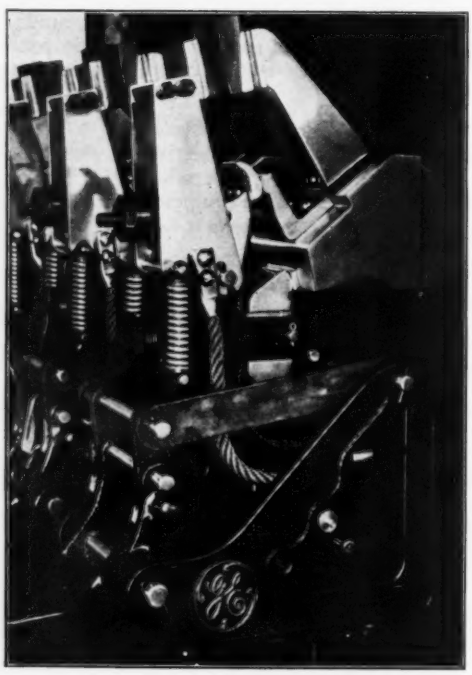

FIG. 6
Partial section of a 4000 ampere air circuit breaker showing embedded silver bridging contacts together with metal and carbon secondary and arcing contacts.

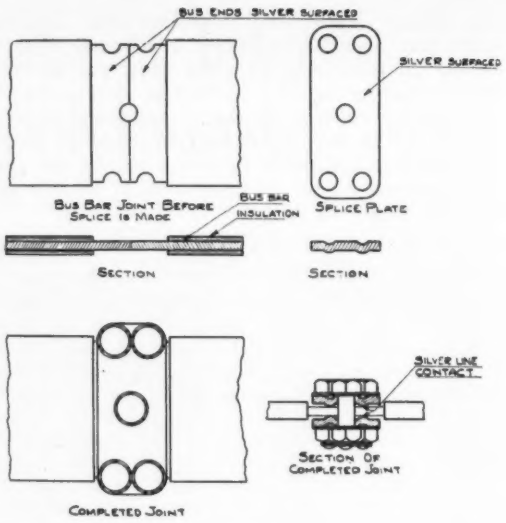

FIG. 7
Silver surfaced line contact splicing plates used in joining buses, etc.

massive blocks of specially treated copper capable of withstanding burning incident to frequent operation. The contacts are self-aligning and compression springs insure good contact and automatically adjust these contacts as burning takes place.

Silver Faced Contacts

Copper being the most efficient practical conductor of electric current, is almost exclusively used for bus and connection bars as well as for the current carrying parts in various types of electrical apparatus. As a consequence, most electrical contacts have been made between copper surfaces, either by bolting, clamping or through spring pressure.

Movable copper to copper contacts have the objection that they oxidize and therefore do not have a constant resistance, even when under high pressure. This objection, of course, can be compensated for by occasionally cleaning and operation.

Fine silver, on the other hand, while it will oxidize, has the property that its oxide is a good conductor and therefore joints between silver surfaces are much more stable.

Research has developed a process by which it is possible to coat copper with silver in such a manner that the silver actually amalgamates with the copper, affording a contact of constant low resistance and of long life. At the same time, it has been established that a contact joint of the line to line high pressure type is the most efficient and by adding a silver coating to this type of contact construction an ideal contact is obtained.

Fig. 5 shows a G. E. standard LG-118-B, 15,000 volt 600 ampere disconnecting switch using silver to silver high pressure line contacts, the contacts on both the hinge and contact clip being in the form of lines. They are practically self-aligning and require no contact re-surfacing or adjustments after being placed in service.

Contacts in heavy current carrying apparatus have been made more rugged and efficient by the use of small silver bars embedded in the copper to form a silver to silver line contact. Fig. 6 illustrates the use of a silver tipped main current carrying bridging member in a standard 4000 ampere air circuit breaker.

Another example of a practical self-aligning silver to

silver high pressure contact is shown in Fig. 7 and is used for splicing buses.

Automatic Reclosing Equipment (For A. C. Circuits)

It is becoming general practice for utilities to install automatic reclosing equipment on their feeders, so that power may be restored after interruptions as quickly as possible. Operating tests have been made to determine the relative merits of delayed versus immediate initial reclosure and it has been found that the percentage of successful first reclosures is approximately the same, around 88 per cent, whether a delayed (15 second) or immediate initial reclosure is used. Where immediate initial reclosure is employed, the total lapsed time of the disturbance is so short that, from the user's point of view, there is no interruption in service, whereas a 15 second reclosing interval is in the nature of an interruption.

In order to take advantage of this service, it is necessary that the various control circuits used in the pulp and paper industry, such as motor control, be provided with time delay undervoltage devices. Instantaneous undervoltage devices as a rule will drop out within a few cycles after the voltage has decreased below the drop out value. General consideration has indicated that a delay (after complete removal of voltage) of from 1 to 3 seconds will be suitable in a majority of applications of this type.

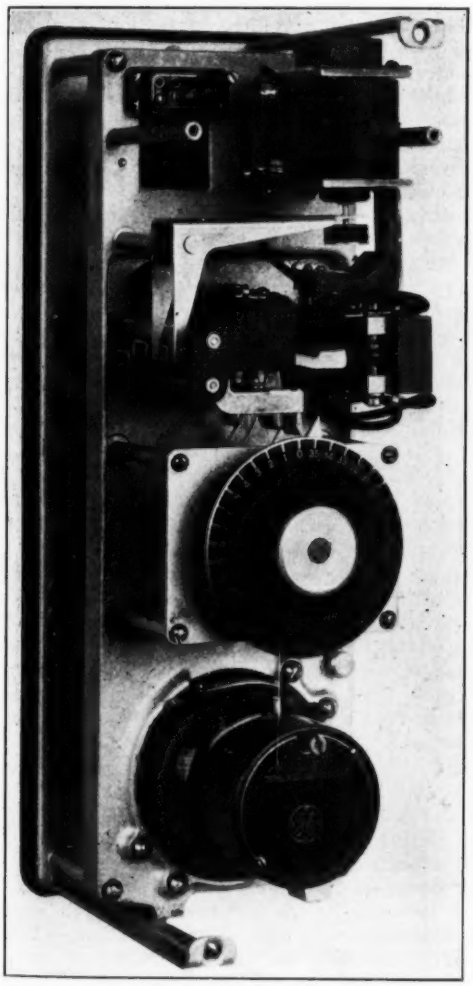

FIG. 8
Motor operated reclosing device having adjustable time intervals for one, two or three reclosures.

FIG. 9
Unmounted glass tube used in mercury reclosing device showing orifices and mercury in the "breaker closed position."

Induction motors, as a class, do not require special consideration in connection with immediate intial reclosure, since they are usually able to return to normal from any reduced value of speed. However, synchronous motors will not necessarily pull their load back to normal speed after a voltage interruption. Their ability to return to synchronous speed depends on load characteristics and the pull in torque characteristics of the motor. Some synchronous motors can be re-synchronized by the use of suitable field removal and re-synchronizing equipment. Other synchronous motors, due to a combination of torque and load characteristics, will require in addition to the above equipment, suitable unloading features.

Reclosers available for this type of service are described in the following paragraphs. Although there are other types available, the devices described below may be considered as being typical for this class of service.

A recloser available to give immediate reclosure or not, as desired, is shown in Fig. 8. This device is motor driven and through a set of cams operates a group of contacts at desired (adjustable) intervals.

A reclosing device actuated directly from the breaker mechanism, giving 1, 2 or 3 reclosures at fixed time intervals, is shown in Fig. 9. The time between reclosures is determined by the rate of flow of mercury through an orifice, and the size of the contact cup. The number of reclosures is determined by the quantity of mercury in the device. In the locked-out position the mercury is accumulated in a lock-out chamber where it remains until the device is reset (by closing the breaker). The device is hermetically sealed and therefore non-adjustable after manufacture. By changing the size of the "timing" orifice it is impossible to obtain a minimum time of 30 to 60 cycles (one operation only) up to a maximum of 20 seconds (for three reclosures).

Although oil circuit breakers are used in a very large portion of a-c. reclosing equipments, nevertheless air circuit breakers have been used in this manner, principally on low voltage circuits. The general features to be considered in connection with automatic reclosing, apply equally as well to air circuit breakers and oil circuit breakers.

While ordinarily the industrial is interested in automatic reclosing only to the extent of providing proper apparatus to coordinate with the reclosing equipment placed

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by the utility on their lines feeding the industrial there will be undoubtedly some cases when automatic reclosing equipment on feeders within the plant will perform the same service.

Synchronous Motor Control Equipment

Synchronous motor control equipment automatically provides full protection to the motor against injurious heating under all conditions of operation including starting, running, stalling, overload, low voltage, excitation failure and operation at sub-synchronous speed. They will not unnecessarily interrupt service before the maximum safe operating temperature is reached.

Field excitation is automatically applied to the motor at a definite predetermined speed, adjustable between 92 to 99 per cent of synchronous speed. This is obtained by the use of a time delay drop-out relay and copper oxide rectifier in the field circuit. Inasmuch as the slip frequency can be determined by the frequency of the induced field current, the relay and rectifier combination are so arranged as to measure the time between alternate loops of induced field current which are of the same polarity. As soon as the interval between these loops is greater than a predetermined value, the relay drops out, applying excitation to the field.

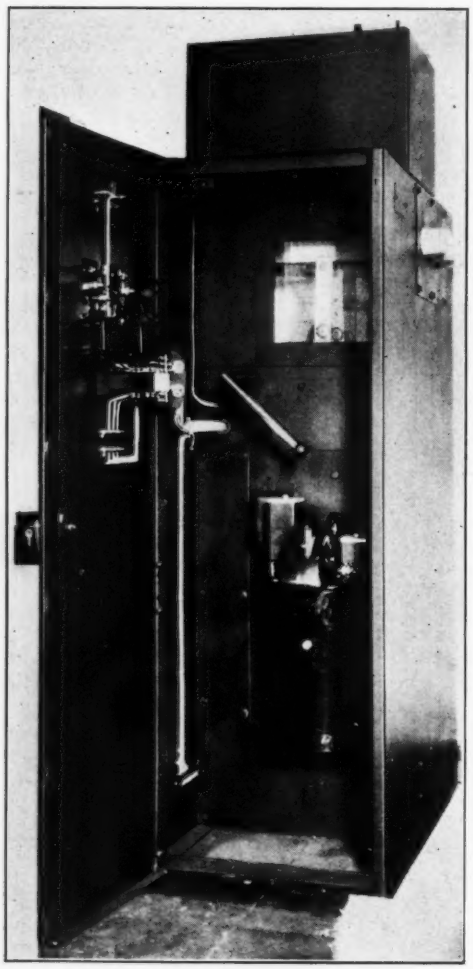

FIG. 11
Standard cubicle with the front panel door swinging open permitting access to the control wiring and breaker mechanism and operation of the group operated disconnecting switches.

FIG. 10
Front of a group of standard cubicles equipped with control for incoming lines, induction and synchronous motors.

If the motor is pulled out of synchronism, field excitation is immediately removed by a power factor relay. If load conditions permit resynchronizing before the motor reaches its maximum safe temperature limits, field is automatically reapplied in the manner described above.

Instantaneous undervoltage protection is provided as standard with equipments of 600 volt and lower ratings, while time delay undervoltage protection is provided as standard with equipments of over 600 volt rating. Time delay undervoltage devices permit motor control equipment to take full advantage of immediate initial reclosure as described in another part of this paper.

The stator and squirrel cage windings are protected against overload by temperature relays located in the stator and field circuits, respectively.

The operation of these equipments is entirely automatic in response to a push button or other master control device. Line voltage is automatically applied to the motor and after the motor reaches the desired speed, field excitation is automatically applied and the motor pulls into step. Equipment of this type has a marked advantage over full manually operated equipment, in that it permits remote control, will automatically apply and remove field, and yet provide full protection to the motor against injurious heating.

Cubicles

Cubicle switchgear fills a requirement of the manufacturing industry by providing a gear which affords protection to its integral parts.

Basically a cubicle consists of an equipment for a primary circuit in a unit indoor enclosure usually of metal. Units may be assembled together to form a complete switching arrangement. The main devices such as oil circuit breakers, disconnecting switches, instrument transformers and buses, are mounted on the inside of the unit, while the control devices, meters and relays are mounted on front.

Cubicles are made of formed steel construction and have an appearance on a par with the modern switchboard. Fig. 10 shows the front of a series of cubicle units with their protective devices, meters, relays, etc. for feeder and synchronous motor control. Usually the front of the cubicle consists of a swinging panel door, so as to permit access to the rear of the control devices for inspection. Fig. 11 illustrates this type of construction. A vertical metal barrier isolating the primary circuit of the control equipment is also shown. Use of this metal barrier permits access to the control equipment, breaker mechanism and disconnecting switch operating handle without the

danger of the operator coming in contact with the high potential circuits.

Access to the rear of the main switching section of the unit can be had by removable metal plates or by the use of a swinging door. In this section of the unit are mounted the oil circuit breaker, current transformers, disconnecting switches and bus arranged as shown in Fig. 12. Further isolation can be had as shown by the use of the metal barrier between the disconnecting switches and the oil circuit breaker.

Group operated disconnecting switches are generally used as they are inherently safer and lend themselves to a more efficient design and compact arrangement. Fig. 12 illustrates the use of a standard bus wipe silver line contact disconnecting switch. Heavy porcelain insulators are used to support the hinged contact of the switch, the upper contact being made direct on to the bus and thereby eliminating a second porcelain supporting the usual interconnection with its two contact joints between the switch and the bus.

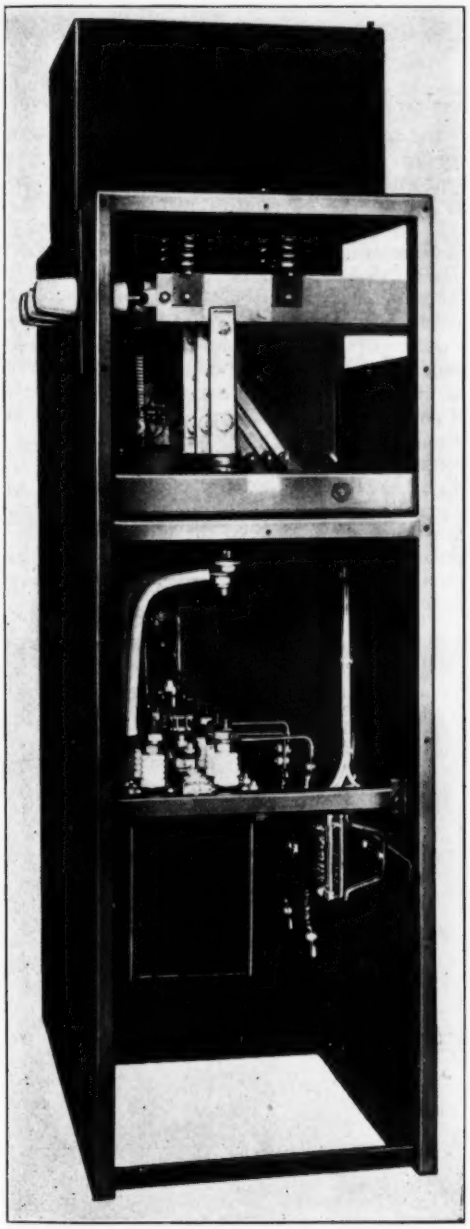

FIG. 12
Cubicle rear view with cover removed showing group operated bus wipe disconnecting switches and isolating barrier between disconnecting switches and oil circuit breaker.

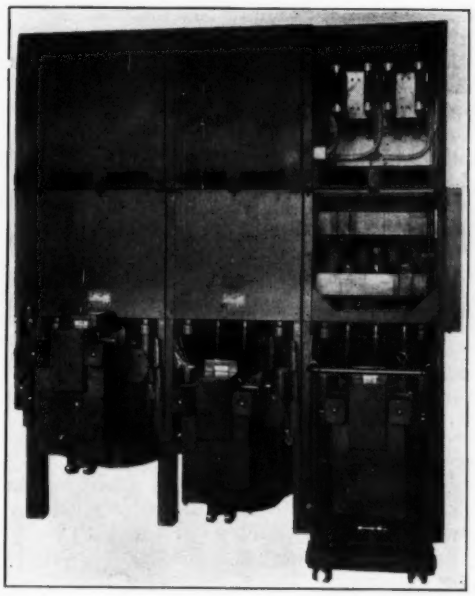

FIG. 13
Front section of a group of metal clad units with cover partially removed showing potential transformers, bus and stationary disconnecting device insulators. Oil circuit breakers are shown in the fully raised position, (operating position), test or disconnect position, and on dolly truck ready for insertion or removal.

Interlocks can be provided as additional factors of safety so as to interlock the disconnecting switch mechanism with the oil circuit breaker so that the disconnecting switch cannot be either opened or closed unless the oil circuit breaker is open. The rear door may also be interlocked so that it cannot be opened, unless either the disconnecting switch or the oil circuit breaker or both are open.

Space is provided for cable pot heads and the leads may come into the unit either from above or below. Complete interconnections may also be insulated as an additional factor of safety.

Metal Clad Switchgear

The most modern type of metal enclosed switching equipment is metal clad switchgear. In this type of gear the main switching device (oil circuit breaker) is easily removable and interchangeable with devices of like rating; each part or set of devices in the main circuit is isolated and special insulation is provided throughout in order that full advantage may be obtained from unit installation, low maintenance, reliability and continuity of service, safety to attendants, accessibility, high salvage value, and low fire risk.

Each unit is composed of two elements, a stationary structure and a removable switching unit. Stationary structure mounts the buses, instrument transformers, disconnecting devices and connections. The removable unit consists of the oil circuit breaker with its operating mechanisms.

Breakers having their mechanism internal and fully protected and generally of the oil blast type, are used in metal clad gear. The breakers are rolled into the unit by means

or a small dolly truck and raised vertical to their operating position by means of the self contained elevating device which is an integral part of the stationary structure.

Self-aligning disconnecting devices of the ball and socket silver to silver line contact type are used, the top of the oil circuit breaker stud being rounded and silver coated to form the ball portion, and the socket being in the nature of a splined silver coated tube mounted in a porcelain shell in the stationary structure. The socket portion of the disconnecting device is connected to the bus by pressure brazing the copper, thus eliminating all contact joints with the exception of the one at the disconnecting device itself.

Molded insulation of a very high dielectric is used on the bus which, in turn, is mounted on specially prepared rigid supports. Complete interlocks are provided to protect against the removal or insertion of the breaker unit without the breaker being opened and also to provide means for padlocking the removable unit so as not to permit operation by unauthorized attendants.

Leads may come to the unit from above or below and groups of units may be interconnected to form a complete switching arrangement as illustrated in Fig. 13.

Metal clad gear has been equipped with panel fronts for mounting the control devices necessary for the operation of feeders, motors, generators, etc. so that the complete switching equipment and control is located at one central point. Fig. 14 illustrates the front of a group of metal clad units equipped with automatic protection.

FIG. 14
Front section of a group of metal clad units fully equipped with control equipment for automatic operation of synchronous motors and feeders.

Metal Enclosed Air Circuit Breaker Structures

Another shipped assembled metal protected gear is provided using air circuit breakers as interrupting devices for the control of low voltage distribution of 600 volts and below.

Each breaker mounted on an insulating base is individually enclosed with access to the breaker compartment from the front of the structure by means of a removable flanged plate or swinging cover. Breaker studs extend through the insulating base which forms the back of the compartment. Buses and interconnections are mounted in the rear and may be of the open construction or housed in metal by the use of removable plates surrounding the rear of the complete structure. Fig. 15 illustrates this type of equipment using AB-2 and AL-2 200 to 4000 ampere air circuit breakers.

Another form of an air circuit breaker structure utilizes the compound enclosed breaker which has recently become quite popular for panel boards, load centers, and distribution boards, the breakers being substituted for fuses or fused switches. These breakers are mounted back of the steel panel front with their handles extending through, as shown on Fig. 16. The panel front is easily removable for access and the breakers may be removed from the front. The breaker, being in itself completely enclosed, there is practically no need for isolating compartments as used with the general type of air circuit breaker. Buses and connections are mounted in the rear and the entire structure may be enclosed by easily removable overlapping metal plates.

FIG. 15
Front view of a metal enclosed distribution board using air circuit breakers from 200 to 4000 ampere capacity.

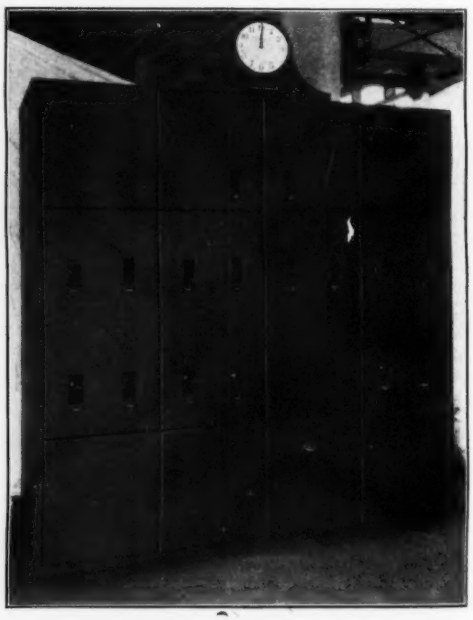

FIG. 16
Typical switchboard front using compound enclosed air circuit breakers. Front panel sections are easily removable permitting access.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 20, 1934

CIGARETTE PAPER

——, Kosciuszko Gdynia, 50 cs.

WALL PAPER

S. K. Loengren, Drottningholm, Gothenburg, 3cs.; Globe Shipping Co., Frankfurt, Hamburg, 1 ble., 1cs.; R. F. Downing & Co., Takaoka Maru, Kobe, 12 bls.

NEWS PRINT

Jay Madden Corp., Frankfurt, Bremen, 90 rolls; Perkins Goodwin & Co., Drottningholm, Gothenburg, 870 rolls; Star Co., Markland, Liverpool, 251 rolls; World Telegram, Markland, Liverpool, 569 rolls; N. Y. Tribune, Markland, Liverpool, 1542 rolls; B. J. Warren, Markland, Liverpool, 33 rolls; Clinton Paper Corp., Markland, Liverpool, 242 rolls.

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H. Reeve Angel & Co., Inc., American Farmer, London, 3 cs.; A. Giese & Son, Olympic, Southampton, 100 bls.

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B. F. Drakenfeld & Co., Antonia, Liverpool, 5 cs. (simplex); B. F. Drakenfeld & Co., Antonia, Liverpool, 25 cs. (duplex).

DECALCOMANIA

Sellers Transportation Co., Bremen, Bremen, 26cs.

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Rohner Gehrig & Co., Bremen, Bremen, 12 cs.

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METAL COATED PAPER

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Coty Processing Co., Champlain, Havre, 30 cs.

PAPER BOARD

Colmar Paper Corp., Black Tern, Antwerp, 13 cs.

MISCELLANEOUS PAPER

Meadows Wye & Co., Drottningholm, Gothenburg, 9 bls.; The Borregaard Co., Inc., Drottningholm, Gothenburg, 86 bls., 1241 rolls; Kraemer & Co., Drottningholm, Gothenburg, 237 bls.; E. H. Sargent & Co., Drottningholm, Gothenburg, 3 cs.; Japan Paper Co., Tokai Maru, Kobe; Corn Exchange Bank Trust Co., Tokai Maru, Kobe, 10 cs.

RAGS, BAGGINGS, ETC.

Van Oppen & Co., Schodack, Havre, 195 bls. bagging; J. Flannery, Schodack, Havre, 38 bls. rags; E. J. Keller Co., Inc., Black Tern, ——, 22 bls. rags; E. J. Keller Co., Inc., Black Tern, ——, 97 bls. bagging; W. Steck & Co., Black Tern, Antwerp, 101 bls. flax waste; Irving Trust Co., Cypria, Barcelona, 28 bls. rags.

HIDE GLUE

——, Frankfurt, Bremen, 100 bags.

OLD ROPE

Banco Coml. Italiane Trust Co., Frankfurt, Hamburg, 55 coils; Banco Coml. Italiane Trust Co., Frankfurt, Bremen, 106 coils; S. Birkenstein & Son, Schodack, Havre, 33 pkgs.

CASEIN

D. C. Andrews & Co., Frankfurt, Hamburg, 140 bags.

WOOD PULP

J. Andrews & Co., Drottningholm, Gothenburg, 250 bls. sulphite; D. M. Hicks, Inc., Drottningholm, Gothenburg, 12 bls. sulphite; Perkins Goodwin & Co., Drottningholm, Gothenburg, 250 bls. sulphite; Bulkley Dunton & Co., Minnequa, ——, 250 bls. sulphite, 50 tons; Perkins Goodwin & Co., Minnequa, Sundsvall, 240 bls. sulphite, 40 tons; ——, Minnequa, Hernosand, 5100 bls. sulphate, 850 tons; Lagerloef Trading Co., Scanpenn, Helsingfors, 469 bls. sulphite, 79 tons; Lagerloef Trading Co., Scanpenn, Kotka, 2540 bls. sulphite, 461 tons; Castle & Overton, Inc., Scanpenn, Kotka, 4704 bls. sulphite, 934 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., Scanpenn, Kotka, 48 bls., 7 tons.

ALBANY IMPORTS

WEEK ENDING JANUARY 20, 1934

Lagerloef Trading Co., Minnequa, Helsingfors, 3498 bls. sulphite, 584 tons; Lagerloef Trading Co., Minnequa, Kotka, 2110 bls. sulphite, 378 tons; Castle & Overton, Inc., Minnequa, Kotka, 2107 bls. sulphite, 414 tons; Pagel Horton & Co., Inc., Minnequa, Gefle, 2125 bls. sulphate, 431 tons; Pagel Horton & Co., Inc., Minnequa, Gefle, 6750 bls. sulphite, 1372 tons; J. Andersen & Co., Minnequa, Hernosand, 3600 bls. sulphite, 600 tons; Perkins Goodwin & Co., Minnequa, Hernosand, 1248 bls. sulphate, 208 tons; ——, Minnequa, Ornskoldsvik, 2448 bls. chemical pulp, 400 tons.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 20, 1934

Lagerloef Trading Co., Scanpenn, Helsingfors, 183 bls. sulphite, 30 tons; Lagerloef Trading Co., Scanpenn, Kotka, 7855 bls. sulphite, 1524 tons; Castle & Overton, Inc., Scanpenn, Kotka, 1628 bls. sulphite, 264 tons; J. W. Hampton, Jr., Scanpenn, Kotka, 145 rolls news print; Bulkley Dunton & Co., Haimon, ——, 300 bls. wood pulp; Bulkley Dunton & Co., Sagoporack, ——, 1500 bls. wood

pulp; E. J. Keller Co., Inc., Exermont, ——, 83 bls. rags; E. J. Keller Co., Inc., Frankfurt, ——, 70 bls. rags.

CAMDEN IMPORTS

WEEK ENDING JANUARY 20, 1934

Bulkley Dunton & Co., Sagoporack, ——, 1250 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 20, 1934

Congoleum Nairn Co., Schodack, Dunkirk, 37 bls. rags; Irving Trust Co., Black Tern, Antwerp, 225 bls. bagging; Bulkley Dunton & Co., City of Norfolk, ——, 800 bls. wood pulp; Bulkley Dunton & Co., West Arrow, ——, 2200 bls. wood pulp; E. J. Keller Co., Inc., City of Hamburg, ——, 336 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JANUARY 20, 1934

Darmstadt Scott & Courtney, Cypria, Barcelona, 74 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING JANUARY 20, 1934

——, Frankfurt, Bremen, 123 rolls news print.

GALVESTON IMPORTS

WEEK ENDING JANUARY 20, 1934

——, Tokai, Maru Osaka, 400 bls. bagging.

Finnish Paper Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 23, 1934—Finnish paper exports at the close of the third quarter of last year totaled 230,974 metric tons as against 207,772 tons during the corresponding period of 1932, according to a report from American Consul John L. Bouchal, at Helsingfors. Prices of paper, as well as chemical and mechanical wood pulps, were slightly better than at the same time in 1932.

Production of chemical pulp for export in Finland during 1934 is expected to reach 900,000 metric tons. Of this amount 80 per cent has already been sold. Only about 150,000 tons, or approximately the same quantity as 1933, have been contracted for to the United States.

Japan To Increase Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 24, 1934—The Japanese will lower the curtailment rate for paper, effective immediately, according to a cablegram recently received from the office of the Commercial Attache in Tokyo. This will increase the monthly output by around 1,500 short tons. Production of foreign-style papers by the seven leading companies in November aggregated 65,799 short tons. Imports of pulp for paper making during the first eleven months of 1933 totaled 147,000 tons, exceeding figures for the corresponding period in 1932 by 4,600 tons.

McElwain Club Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 23, 1934.—The McElwain Club, consisting of executive, managers and assistant managers of the Crocker-McElwain and Chemical Paper Manufacturing Companies last week elected the following officers: President, James Weir; Vice President, Ralph Bosworth; Secretary, Stanley A. Scott; Treasurer, Lawrence Fields; members of governing board, George Knox, Charles Hill, James Stewart and Robert Stedman.

New Timken Engineering Journal

A new 266 page loose leaf book of general information on the various types of Timken Bearings has just been released. It differs materially from previous editions since new load ratings have been established conforming to the fatigue life of the bearings.

An explanation of these ratings along with the methods of calculating loads and selecting bearing comprises one section.

This is followed by a statistical presentation of the bearings available in the various types. These tables have been arranged uniformly by cone bore with the smallest bores shown first. In the single row group are included the standard or conventional bearings, the tapered bore, steep angle, keyway cone, flanged cup, S.A.E. Standard and airplane series. The two row assemblies include the two-row self-contained bearings; the two-row, double cone, single cups, both in the wide and narrow series. In the same group will be found the tapered bore cones, with and without pullers and the slotted cone bearing.

Following the last named unit are the double cup bearings, that is, the assemblies in which two standard cones are assembled into a double cup to form a unit, and the N.A. group. Both of these are divided into the regular and steep angle series. Another tabulation appears here, consisting of a type of bearing very similar to the N.A. assemblies, the cone however consists of a single piece, the cups being held apart and the correct bearing setup maintained through the use of a split spacer ring inserted between the cups. With this spacer in place the entire assembly becomes a complete unit.

The four row group consists of two tabulations, those with cone spacer pilots and those without. The former is recommended for those applications which require a loosely fitted cone on the shaft and the latter those with a tight fit. Following the tabulations just indicated will be found the "T" types or flat thrust bearings and the steering gear type bearings.

The next two hundred odd pages comprise the Dimension Sheet Section. The illustrations in this division are to scale and accurate to .01". This permits the draftsman to use them to trace the bearing in the proper position on his drawing either in full or half size, as both sizes are given. In the application of Timken Bearings certain miscellaneous parts are frequently needed and the section immediately following the Dimension Sheets covers shims, nuts, tubes, washers, cotter pins and several types of closures.

The success of a Timken Bearing application depends, not only on the selection of the proper bearing but also on the observance of certain basic principles. These are covered thoroughly in the section on mounting. Shaft and housing design, typical mountings of single, double and quadruple assemblies, closures, fitting tolerances for both cups and cones, assembly methods, data on lubrication and a description of the Timken Wear and Lubricant Tester concludes the book.

China Clay Leaves England for Boston

The S. S. Gerda Toft has sailed from England under date of December 29 for Boston and other ports with a full cargo of china clay largely for use in the manufacture of paper.

This boat is for the account of the Paper Makers Importing Company of Easton, Pa. and the John W. Higman Company of New York City.

The vessel was due at Boston about the 13th or 14th, docking at the Boston Tidewater Terminals.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 24, 1934.

Conditions in the local paper market are improving. Demand for the various standard grades of paper is picking up and inquiries for future account are numerous. Sales forces of the leading paper organizations are generally optimistic. Prices are holding to previously quoted levels, without difficulty.

The news print paper market is in a better statistical position than for some time past. Advertising volume continues to run heavier than in the corresponding period of 1933. Production in the United States and Canada is being maintained in sufficient volume to take care of current needs.

Trading in the paper board market is fairly brisk. Demand for box board is persistent. Prices are steady to firm. The fine paper market is becoming more active. Tissues are moving in good volume for the season. The coarse paper market is in good shape and more interest is being shown in kraft wrapping paper.

Mechanical Pulp

The ground wood pulp market is practically marking time. Manufacturing operations in this country and abroad are keyed to consumption and the statistical position of the industry is strong. Prices are holding to schedule and reports of concessions are infrequent. The outlook for the future is considered promising.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Although demand for the various domestic and foreign grades is light at present, there are numerous inquiries around, some of which should materialize into good orders. The contract movement is normal. Prices remain unchanged.

Old Rope and Bagging

The old rope market is firmer. Demand for domestic and imported old manila rope is better. Small mixed rope is fairly active. Old rope quotations are steady. Some improvement transpired in the bagging market. Scrap and gunny bagging are moving more freely and roofing bagging is in seasonal request.

Rags

Paper mill interest in the domestic rag market is more in evidence. New cotton rags are exhibiting a stronger undertone. No. 1 white shirt cuttings continue firm. Roofing grades are in better request at higher prices. The imported rag market is sharing the general improvement. Linsey garments are particularly firm.

Waste Paper

The lower grades of paper stock are in increased demand from the board mills. Prices are firmer on strictly over-issue, strictly folded, and No. 1 mixed news. Book stock again advanced. Stitchless flat stock is now quoted at from 90 to 95 cents and over-issue magazine at from 90 cents to $1.00. Hard and soft white shavings continue steady.

Twine

While most of the business transacted in the local twine market during the past week was along routine lines, more lively trading is looked for in the near future. Supplies are moving into consumption in satisfactory volume for the time of year. Prices are holding to schedule.

Experimental Economics in 1877

TORONTO, Ont., January 18, 1934.

EDITOR PAPER TRADE JOURNAL:

In the Paper Trade Journal of September 29, 1877 is an account of the patent situation of the Voith method for preparing mechanical pulp from wood. That was the reason it was filed where I found it.

It had other interesting matter, but the most human thing was in the classified advertisements.

Here it is.

"Wishing to give my son the management of my mill and business for a time, I wish to get a situation as foreman. Address

JAMES HARPER
Westville, Conn."

This calls for some speculation. Was son Harper "trying to teach his grandmother to suck eggs," and Dad Harper being fed up, going to let him have his way?

It looks like something better than that.

Son Harper seems to have merited his father's confidence to such an extent that Dad is content to leave him carrying on while he gives his time to something else.

Further, see what kind of an Old Man we have. No golf at Hot Springs, or Grand Tour in Europe; no "first-vacation-in-twenty-years" bunk. No sir, while Son Harper makes or breaks the old mill, Dad is going to work. And you will note that it's no white collar job he wants, no superiority complex. Here's the owner of a "mill and business" wishing "to get a job as foreman." There's a very wholesome sound here, something rugged and good.

Perhaps Son Harper is still with us. Possibly there's a grandson Harper who could tell us something more of the outcome of this earlier "noble experiment."

T. LINSEY CROSSLEY.

Norwegian Pulp and Paper Exports Lower

WASHINGTON, D. C., January 24, 1934—Norwegian pulp and paper exports during 1933 showed a slight decline. The heaviest decrease was in shipments of groundwood, which dropped from 506,397 tons to 468,208 tons during the first ten months periods of 1932 and 1933. Shipments of chemical pulp also declined, the total falling to 209,362 tons as against 220,104 tons in 1932. In the paper and board group, exports are also under those of 1932, although wrapping papers, boards, and book and writing papers show slight increases. These, however, were insufficient to offset a decrease from 135,001 tons to 114,215 tons in shipments of newsprint.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 24, 1934.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is moderately active. Shipments against contract are fairly heavy. Prices are maintained at formerly quoted levels. Bleaching powder is selling at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firmer. Domestic standard ground is quoted at 11¾ cents and finely ground at 12 cents per pound. Argentine standard ground is selling at 13½ cents and finely ground at 16 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is persistent. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3.00 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is displaying strength. Prices are holding to schedule. Imported china clay is quoted at from $13.50 to $21.00 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, ship side.

CHLORINE.—Paper mill demand for chlorine is fairly active. The contract movement is normal. Prices are steady and unaltered. Chlorine is quoted at from $2.00 to $2.25 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is firmer. The grades of gum rosin used in the paper mills are now quoted at from $5.30 to $5.60 per 280 pounds, in barrels, at works; while wood rosin is selling at $4.20 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market is exhibiting a strong undertone. Prices are firm. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works; while foreign sale cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—Trading in the soda ash market is brisk. Supplies are moving into consumption in good volume. Prices are firm. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—The starch market is practically marking time. Shipments against contract are going forward regularly. Prices remain unchanged. Special paper making starch is quoted at $2.67 per 100 pounds, in bags; and at $2.95 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Steadiness prevails in the sulphate of alumina market. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is quoted at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market are fairly satisfactory. Prices are holding to formerly quoted levels. Domestic talc is selling at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
[illegible]			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.60	@	.80
White No. 2	.55	@	.70
Anti-Tarnish M. G. only	.75	@	.80
Colored	.80	@	1.00
Kraft	.75	@	.80
Manila	.65	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.11	@	—
No. 2	.10	@	—
Bleached, basis 20 lbs.	.13	@	—

(Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Side Runs	25.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	45.00	@	50.00
Chip	42.50	@	47.50
Sgl. Mla. Lt. Chip	52.50	@	55.00
Jute Lined Chip	52.50	@	55.00
White Patent Coated	60.00	@	65.00
Binders Boards	68.00	@	72.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	27.50	@	29.00
Dry	30.00	@	31.00

(F.o.b. Mill)

No. 1 Domestic and Canadian	22.00	@	28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.75	@	1.90
Kraft No. 2	1.60	@	1.70

(F.o.b. Pulp Mill)

Kraft Domestic (Delivered)	1.60	@	2.75
Soda Bleached	2.50	@	—

* Add 5 Cents for Albany and 15 Cents for Lake Ports.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.00
Silesias No. 1	4.25	@	4.50
New Unbleached	6.75	@	7.25
New Soft Blacks	3.00	@	3.25
Blue Overall	4.00	@	4.25
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.00	@	1.15
No. 2	.70	@	.75
No. 3	.60	@	.70
No. 4	.55	@	.60
No. 5A	.50	@	.55

Foreign Rags

New Rags

New Dark Cuttings	1.50	@	1.60
New Mixed Cuttings	1.60	@	1.70
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.25	@	6.50
New White Cuttings	5.75	@	6.25
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	3.75	@	4.00
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.60	@	1.75
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.65	@	1.80
French Blue Linens	2.10	@	2.25
German Blue Linens	1.85	@	2.00
German Blue Cottons	1.50	@	1.60
Checks and Blues	1.30	@	1.40
Linsey Garments	1.50	@	1.75
Dark Cottons	1.15	@	1.30
Old Shopperies	1.00	@	1.10
New Shopperies	.90	@	1.00
French Blues	1.50	@	1.65

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.40	@	1.50
Domestic	1.30	@	1.40
Wool Tares, light	1.10	@	1.20
Wool Tares, heavy	1.10	@	1.20
Bright Bagging	1.05	@	1.15
Manila Rope			
Foreign	2.40	@	2.50
Domestic	2.50	@	2.75
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	1.50	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.30	@	2.40
Hard White No. 2	2.00	@	2.10
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.90	@	.95
Overissue Mag.	.90	@	1.00
Solid Flat Book	.70	@	.80
Crumpled No. 1	.55	@	.65
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.95	@	1.05
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.60	@	1.70
New Cuttings	1.15	@	1.25
Extra No. 1 old	.75	@	.85
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue	.60	@	.65
Strictly Folded	.50	@	.55
No. 1 Mixed Paper	.28	@	.33

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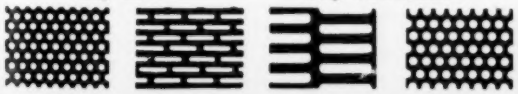

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Twines
(F. o. b. Mill)

Cotton—			
B. C. 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian. 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.15	@	.16
Tube Rope—			
4-ply and larger	.09¼	@	.09¾
Fine Tube Rope—			
4-ply	.11¼	@	.11¾
3-ply	.14¼	@	.14¾
2-ply	.14¼	@	.14¾
Paper Makers Twine	.08¼	@	.13¼
Box Twine, 2-3 ply	.14¼	@	.14¾
White Hemp	.13¼	@	.16¾
Java Sisal—			
No. 1 Basis	.11½	@	—
No. 2 Basis	.10½	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.13½	@	.15½
No. 2	.11½	@	.13½
Manila Twine	.24½	@	.29½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¼	@	.15
Sulphite Bond	.05½	@	.15
Specialty Writing	.10	@	.45
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¼
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04½	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04½	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.09¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	51.00
Boards, per ton—			
Plain Chip	37.50	@	—
Solid News	43.50	@	—
Manila Lined Chip	47.50	@	—
Patent coated	55.00	@	—
Container Lined—			
85 Test	60.00	@	65.00
100 Test	60.00	@	70.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	1.80
No. 1 Hard White	1.40	@	1.50
No. 1 Soft White	1.20	@	1.30
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.50	@	.55
Overissue News	.60	@	.70
Old Newspapers—			
No. 1	.55	@	.60
Mixed Papers—			
No. 1	.30	@	.40
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.24
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.10
Manila Sul., No. 1	.03	@	.06
Manila No. 2	.03	@	.05
No. 1 Kraft	.05¼	@	.06½
No. 2 Kraft	.03¾	@	.05
Southern Kraft	2.75	@	4.00
Common Bogus	.03	@	.04½

(Delivered Philadelphia)

News Print Rolls	46.00	@	55.00
Straw Board	40.00	@	45.00
News Board	50.00	@	—
Chip Board	45.00	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	2.00	@	2.10
No. 1 Soft White	2.05	@	2.10
No. 2 Soft White	1.15	@	1.25
No. 1 Mixed	.95	@	1.00
No. 2 Mixed	.75	@	.80
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.05	@	1.10
No. 1 Books, heavy	.90	@	1.00
No. 2 Books, light	.70	@	.80
No. 1 New Manila	1.20	@	1.50
No. 1 Old Manila	.85	@	.90
Print Manila	.75	@	.80
Container Manila	.55	@	.60
Old Kraft	1.00	@	1.10
Common Paper	.35	@	.40
No. 1 Mixed Paper	.35	@	.40
Straw Board Chip	.35	@	.40
Binders Board Chip	.35	@	.40
Corrugated Board	.50	@	.60
Overissue News	.55	@	.60
Old Newspapers	.40	@	.50

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11
Rag Content	.12	@	.40
All Rag	36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.03½	@	.04½

(F. o. b. Boston)

Southern Kraft	.03½	@	.04½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¼

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	45.00	@	50.00
Chip Board	42.50	@	47.00
Chip Board (Creasing)	45.00	@	—
Single Manila Lined Chip	52.50	@	62.50
Single White, Patent Coated News Board—Bender	62.50	@	72.50
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.40	@	—
No. 1 Soft White	1.75	@	2.00
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.40	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	1.00	@	1.10
No. 1 Books, heavy	.85	@	.95
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.95	@	1.05
White Blank News	1.15	@	1.25
No. 1 Kraft	1.05	@	1.10
Manila	.75	@	.80
No. 1 Mixed Papers	.22½	@	.27½
Print Manila	.45	@	.50
Overissue News	.55	@	.60
Old Newspapers	.47½	@	.50
Box Board Chips	.32½	@	.35
Corrugated Boxes	.35	@	.40
Screening Wrappers	.60	@	.70

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	2.50	@	—
Domestic	—	@	2.50
Transmission Rope	1.60	@	—
Mixed Strings	—	@	.60
Jute Rope	1.15	@	1.35
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.35	@	1.45
Domestic	1.00	@	1.10
Bleachery Burlap	3.00	@	3.25
No. 1 Scrap Burlap	1.00	@	1.10
Scrap Sisal	1.25	@	1.35
Scrap Sisal for shredding	1.25	@	1.35
Wool Tares, heavy	1.25	@	—
New Burlap Cuttings	1.25	@	1.50
Australian Wool Pouches	2.25	@	2.50
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	—
Bagging No. 2	.40	@	.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.02	@	.02¼
New White No. 1	.06½	@	—
New White No. 2	.04½	@	.05
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.07	@	.07¼
Blue Cheviot	—	@	4.65
Fancy	—	@	.02½
Washable	.02¾	@	—
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03¼
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.03
B.V.D. Cuttings	—	@	.06¾

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.01½	@	.01¾
Miscellaneous	.01½	@	.01¾
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	1.10	@	1.25
Miscellaneous	.85	@	.90
Black Stockings	2.25	@	2.50
Roofing Stock—			
No. 1	.75	@	1.05
No. 2	.65	@	.75
No. 3	.45	@	.70

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.25	@	1.40
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.40	@	1.50

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.10
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.50
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	—
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	1.00	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.05¼	@	.05½
Fancy Shirt Cuttings	.02¼	@	.02½

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